mobile Crossing

WayPoint

WayPoint

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Tools

WAYPOINT 100/200 SERIES
NAVIGATOR'S HANDBOOK

WayPoint 100/200 series
Navigator's Handbook

You can find additional product and support information at the following website: http://www.mobilecrossing.com or contact:

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Introduction

Welcome

Congratulations on purchasing your new WayPoint PDA (Personal Digital Assistant). You now have the convenience and flexibility of a Portable Navigation tool and full-featured personal digital assistant, enabling you to automatically route to places of interest, addresses or locations in your contact list. In addition, you can use PIM (Personal Information Manager) functions to keep track of information wherever you go. Powered by Microsoft® Pocket PC 2003 Premium Edition, your WayPoint PDA offers a host of functions designed to make your life easier.

The WayPoint navigation PDA is a full-featured GPS auto-routing mapping solution that offers door-to-door routing with turn-by-turn instructions. (To read about how your GPS works check "Advanced Topics" on page 92.) The WayPoint PDA uses GPS position information and maps to help the user decide on the best route to travel. The WayPoint navigation software includes the full maps for one region. For example, the California edition contains maps covering all of California. Unlike most other products the maps of your region are preloaded. Extra regions may be purchased to supplement or replace the built in maps.

ⓘ A PDA is a small computer that fits in the palm of your hand.

ⓘ PIM functions are programs that keep track of things such as an address book or your calendar.

ⓘ A GPS is a radio receiver that can compute your position anywhere on the planet.

The WayPoint PDA is available in two models which can be distinguished by color. The model 100 is Space Silver and the model 200 is Midnight Blue. They differ primarily in the GPS hardware capability as described below. The model 200 also includes a subscription to TrafficWatch and Weather Underground for one year. (TrafficWatch and Weather Underground are described in separate manuals.)

- The model 100 has an included CompactFlash® (CF) based GPS receiver. It can be inserted in the CF slot of the WayPoint 100 whenever GPS navigation is needed. To save battery power, the GPS can be removed or turned off when it is not needed.

- The WayPoint 200 model uses Bluetooth® technology in conjunction with a Bluetooth GPS. The Bluetooth CF card onboard will communicate with the included Bluetooth GPS receiver which is in a separate package. The Bluetooth CF module can also be used for other communication tasks such as connecting to the Internet via a cell phone. The Bluetooth module should be shut off when not needed to save battery power.

> ⓘ CompactFlash (CF) refers to the larger of the two slots in the top of your Way-Point. It can hold memory or devices.
>
> ⓘ Bluetooth refers to a wireless system that permits information exchange between other nearby Blue-tooth devices.

The WayPoint PDA can be installed in a car using the provided portable vehicle mount. The user should choose a convenient spot on the windshield, left or right of the steering wheel to attach the suction cup. Be sure the unit is not blocking any of the view of the road.

When driving, always use the vehicle mount so that you can maximize the performance settings without worrying about running the battery down. The power cable can be routed to the unit from the 12 Volt "cigarette lighter" power outlet and plugged into the base of the WayPoint vehicle mount. A small adapter cable connects the vehicle mount to the PDA unit.

No part of the hardware should be installed in front of either front airbag. Detailed installation is given in "Getting Started" on page 7 or the Quick Start Guide. For security, the PDA should not be left in an unattended car.

Caring For Your WayPoint PDA

Routine Care

To keep your WayPoint working properly, please follow these guidelines.

- Do not attempt to disassemble or modify the product.

- Never place anything on top of the product.

- Avoid using or storing the product in places where static electricity or electrical noise is likely to be present.

- Avoid using or storing the product in direct sunlight, or in places that are subject to extreme temperatures or sudden changes in temperature. Do not leave the unit in the vehicle mount where it might be exposed to the direct sunlight in a closed up car. The temperature under these conditions can exceed the ratings on the WayPoint products.

- Keep the product away from liquids. Do not expose it to condensation, precipitation or excessive moisture.

- To clean the product, first unplug it from the wall socket. Wipe the screen and the exterior with a soft, damp cloth. Only use water to moisten the cloth; do not use soap or other cleaning products.

- Your WayPoint PDA features a replaceable lithium-ion battery and a backup battery. To reduce the risk of fire or burns, do not disassemble, crush, puncture, short the external contacts, or dispose of the batteries in fire or water. Replacement of the internal backup battery should be performed by a Mobile Crossing authorized service provider.

- The unit can be placed in the cradle charger at any time. The battery works best when it is topped off.

- The vehicle mount window suction cup will attach solidly to the windshield, but it is still not a good idea to leave the WayPoint unit in the vehicle mount un-attended for long periods of time. This is particularly true if the vehicle undergoes wide temperature changes.

AC Adapter Care

- Always use the AC adapter provided, or use an optional adapter supplied or approved by Mobile Crossing.

- Grasp the plug, not the cord, when unplugging the adapter from a wall socket.

- If the power cord becomes damaged, replace it immediately.

- Use the power button to turn the device off. Disconnect the WayPoint PDA from the AC adapter before unplugging it from a wall socket.

Display Care

- Clean the screen by wiping with a soft, damp cloth. Moisten the cloth with water only; do not use soap or other cleaning products.

- Do not spray liquid directly onto the screen. Prevent excess liquid from leaking into the device at the edge of the screen.

- Never place anything on the screen.

- Avoid scratching the screen with hard objects.

- Do not expose the product to direct sunlight for a prolonged period of time.

- A screen protector with anti-glare characteristics is recommended for use in a vehicle or outdoors.

Care While Traveling

- Safeguard your data by making a backup copy.

- Turn the power off and disconnect all external devices.

- Take the included AC adapter or car charger along with you.

- Pack the product in a protective case and carry it in your hand luggage.

- Avoid exposing the product to magnetic security devices.

- To avoid interference, do not use the product on an airplane without permission. This unit meets FCC class B requirements and is generally safe for use above 10,000 feet. The FCc logo on the back signifies that the unit meets these requirements.

- The CE logo on the back of the unit indicates that your WayPoint also meets the requirements of European countries and is similar to the FCC class B requirements.

Shipping the unit

When shipping, pack the product and all external devices in the original packing boxes or in similar packaging with sufficient protective padding material. Nothing should be permitted to rattle.

If, for some reason, you need to ship the unit to Mobile Crossing, be sure and get an MRA (Material Return Authorization) number first and include this number on the outside of the packaging.

Using this Manual

Many of you do read manuals and this one is organized to be read from front to back. It also contains an index for ready reference later. There is a glossary near the back for terms you might not be familiar with. Many of these terms are also described in a sidebar.

However, it is recognized that some may only wish to skim the manual or are very familiar with some aspects and may choose to skip over those sections at first. This can be a very useful way to get going quickly but at some point it would be a good idea to return to those sections as they cover some unique features in the product.

If you want to skip around you will find the following descriptions helpful in determining your choices. The tabs on the cover provide and easy way to get to the various chapters.

- Chapter 2 "**Getting Started**" supplements the Quick Start Guide. It provides a text check list to complement the picture check list in the Quick Start Guide. It also provides a tour of the buttons and hardware features of the WayPoint PDA. Finally it includes information on charging and powering the unit as well as more installation information to complement the Quick Start Guide.

- Chapter 3 "**Basic Operations**" provides information for new PDA users on how to get started with a Pocket PC. It also provides some information on unique features of this particular PDA. If you are familiar with Microsoft Pocket PC PDA's you may be able to just skim this chapter.

- Chapter 4 "**Getting Started with Navigation**" contains the introduction and getting started information for the GPS navigation features of this product. This is where you will learn to use the GPS itself. If you are familiar with GPS operation using other GPS devices you may be able to just skim this chapter. It will be a handy reference if you have any problems with the GPS.

- Chapter 5 "**WayPoint Operation**" contains the introduction to the WayPoint navigation software itself. It explains the basic operation of this navigation tool. It can be used as a reference for learning how the various commands in the tool work and how the screen display is laid out.

- Chapter 6 "**WayPoint Navigation**" explains the automatic routing and navigation features of the product.

- Chapter 7 "**Step by Step**" is for folks that like to learn by example. It provides several step by step examples of performing navigation tasks.

- Chapter 8 "**Bluetooth Operation**" is for WayPoint 200 users who will want to learn how to set up their Bluetooth GPS unit. It also introduces some basic Bluetooth features.

- Chapter 9 "**Advanced Topics**" is intended to go beyond the basic operation of the unit and to provide some more information for the curious. It also provides information on the optional tools that are included on the CD-ROM.

- Chapter 10 "**Troubleshooting**" provides help for users that are having specific problems with their unit. This is the first place to check if something doesn't work right. If you are not sure how something is supposed to work you can use the index to find information about the topic.

- Appendix A "**Technical Specifications**" provides all of the detailed information about the specifications in a table form.

- Appendix B "**Regulatory Notices**" provides information on the FCC, EC compliance and some important Safety information on using the unit and carrying for the battery.

- Appendix C "**Command Line Interface**" provides information for programmers wishing to add unique features or capabilities to their WayPoint.

- Appendix D "**Firmware and Map Upgrades**" provides information on how to upgrade the firmware and maps in the unit or to add additional maps.

- Appendix G "**Glossary**" provides definitions of some of the terms used in the manual.

- Appendix I "**Index**" is where to look when you need to learn about a particular topic.

- The Back Cover provides a quick reference to some key features of the WayPoint.

We recommend that you keep the manual in your glove box so it is handy. The WayPoint manual is your key resource but not the only one. If you would like to search the document electronically or want a copy on the PDA itself you will find a PDF version of this manual on the CD-ROM that accompanies the WayPoint PDA. The PDF version is pre-tagged so that it will read well on the small screen. There are links in all the critical places so you can just tap a link to move around in the document. You will need to download a copy of Adobe Acrobat Reader for the Pocket PC to use this feature on the WayPoint.

The CD-ROM also contains additional information in the form of PDF manuals on Pocket PC operation, Bluetooth operation, and for the built in TrafficWatch & Weather Underground software. The Mobile Crossing web site may contain updates to any or all of these manuals.

Getting Started

Unpacking the Boxes

Start by preparing a suitable workspace to unpack the boxes and set up your WayPoint. Select a place that is located close to an electrical outlet, making sure that the surface is stable, level and clean. There are two boxes. One contains the WayPoint PDA (Personal Digital Assistant) and is described first. A second box contains the GPS receiver, the car mount, and DC power cord.

Open the WayPoint box carefully, ensuring that you do not damage the box or any of the other packing materials. The box will be useful to save in case you ever have to store or ship your WayPoint Pocket PC.

The package contains the following items:

Inside the Outer Box

- ☐ WayPoint Users Manual

- ☐ Additional Software instructions

- ☐ Warranty Card

- ☐ Product Registration Card with Warranty sheet

- ☐ Quick Start Guide

- ☐ Support Sheet

- ☐ EULA booklet – End Users License Agreement

Box 1

- ☐ WayPoint Pocket PC

- ☐ Travel Adapter (USB & Charging)

- ☐ Main Battery
- ☐ Stylus
- ☐ USB Desktop Cradle / Charging Stand
- ☐ USB Cable
- ☐ AC Adapter
- ☐ Companion / Documentation CD
- ☐ Getting Started DVD
- ☐ Plastic dust cover installed in the SD slot

Box 2 For WayPoint 100 and WayPoint 200

- ☐ Powered Vehicle Mount
- ☐ Vehicle Mount T-Slot Docking Plate
- ☐ Windshield Suction Cup with Gooseneck
- ☐ 12 Volt "Cigarette Lighter" Plug cable
- ☐ PDA Vehicle Charging Adapter
- ☐ Audio Cord (3.5 mm to 3.5 mm)

WayPoint 100 only

- ☐ CompactFlash GPS Receiver (Box 2)
- ☐ Plastic dust cover installed in the CF slot in PDA (Box 1)

WayPoint 200 only

- ☐ CompactFlash Bluetooth card pre-installed in PDA (Box 1)
- ☐ Bluetooth GPS charging cable / Adapter (Box 2)
- ☐ Bluetooth GPS Receiver (Box 2)
- ☐ Split Charger cable (Box 2) Bluetooth GPS / WayPoint PDA

Please contact your dealer if any of the items are damaged or missing.

Cable Identification

The following pictures should help in identifying the correct cables.
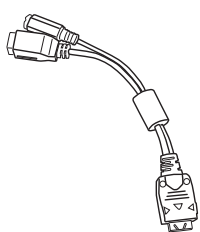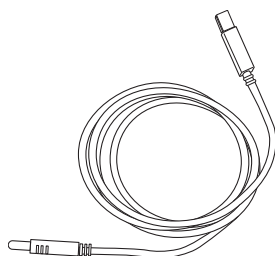
Travel Adapter   USB Cable   PDA Vehicle Charging Adapter

Product Registration

You can register your product by filling in and mailing the registration card or by visiting the Mobile Crossing web site at http://www.mobilecrossing.com/registration. Product registration ensures warranty coverage and provides you with the opportunity to receive update notices of any improvements that may become available for the product. The actual warranty coverage is specified on the Warranty Card that came the product.

WayPoint PDA Overview

Take a few moments to study your new WayPoint. Learn the locations of the buttons, connectors and other hardware features.
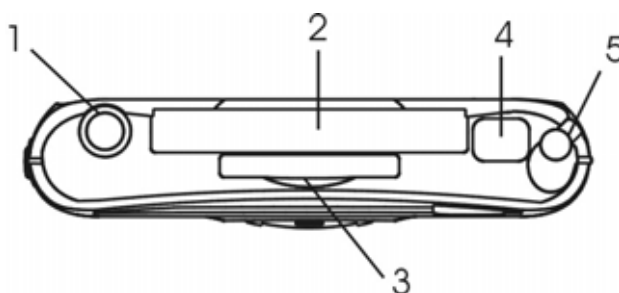
Top view of the WayPoint

1. Stereo Headphone Jack

2. CompactFlash Expansion Slot

3. Secure Digital card slot

4. IR port for Infrared communications

5. Stylus – spring loaded. Press Down to remove.
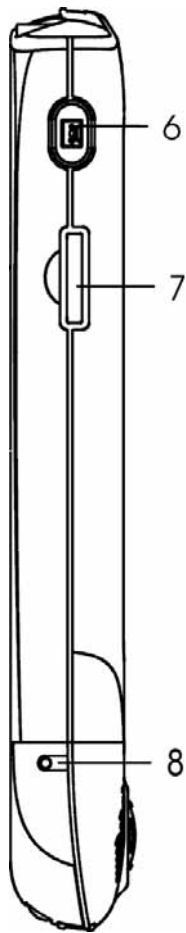
6. Voice Recorder – press and hold to start recording sound via the microphone. Release to stop.

7. Thumb wheel – press to operate: move up / move down / depress to enter

8. Software Reset Button – Unscrew the top end of the stylus and use it to press the software reset button or angle the stylus tip.

Left Side View of WayPoint Front view of the WayPoint
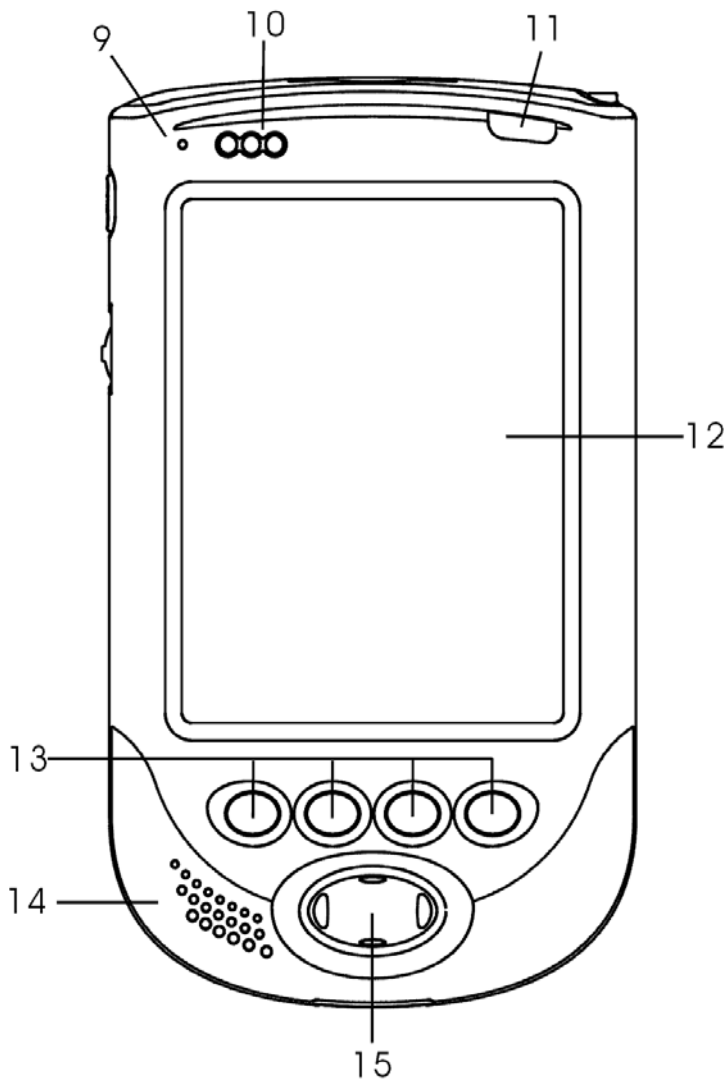
Front view of the WayPoint

9. Microphone

10. LED –
   🔋 ⏰ 📶

   Left: battery charging indicator (flashing red – battery *fast charging* / continuous green – battery 80% full and *trickle charging*) Middle: Alarm / Turn Assist (red light) Right: future use

11. Power Button

12. Touch Screen

13. 4 Programmable Application Buttons – can be set to launch applications quickly. PDA Default settings (left to right):
   1. Calendar
   2. Contacts
   3. Tasks
   4. WayPoint navigation

14. Speaker

15. Cursor Button – press to operate: move up/move down/move left/ move right

16. Charging / Communications Port – connects to the USB cradle or to a PC via the USB cable. Also used to connect to external power or serial devices.
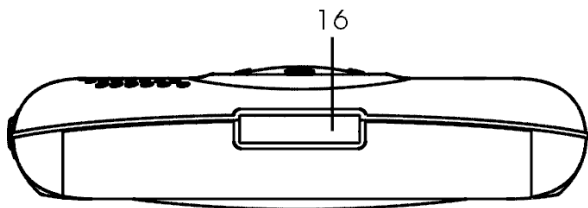
Bottom view of the WayPoint

17. Main battery - To remove the battery cover:

Press the button on the battery cover and slide it downwards. The battery cover can then be lifted off. Please note that when the button on the battery cover is pressed, the device goes into sleep mode.

To replace the battery cover the cover should be pushed firmly over the battery compartment, making sure that the tabs on the cover engage with the guides in the battery compartment. The cover can then be slid up into place.

The cover should fit snugly into place with no gaps.

Rear view of the WayPoint PDA
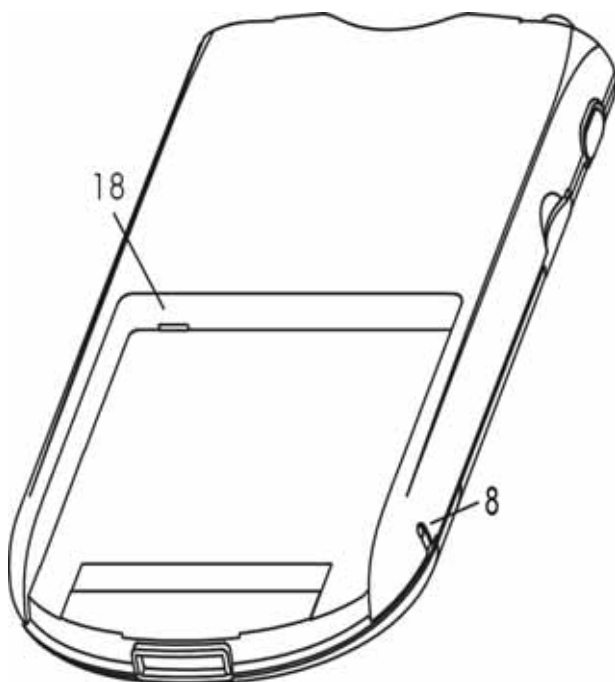
18. Master Power Switch - Unscrew the top end of the stylus and use to operate the switch (Only visible after battery is removed). This switch is used to perform a Hardware reset.

WARNING: Be sure data is backed up before operating this switch. All data will be lost.

Software reset button shown for reference (item 8)
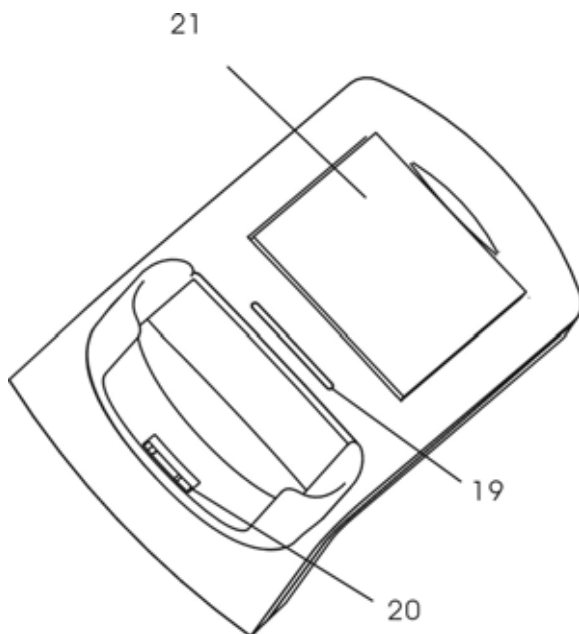
19. LED Charge Indicator. This lamp will be lit to indicate connection to AC power and will brighten to indicate that the spare battery is being charged.

20. The WayPoint PDA Charging / Communications Connector – connects to the Charging / Communications Port on the base of the PDA

21. Charging Bay for spare battery

USB cradle Top View
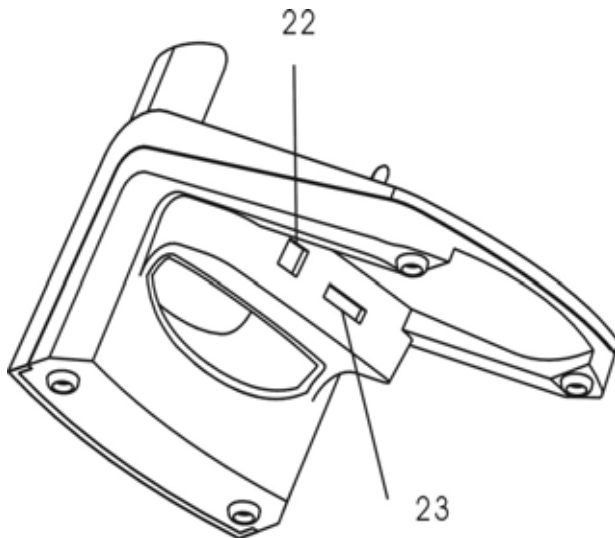
22. 22. DC in jack

23. 23. USB Cable Port

USB Cradle Bottom View

The First Time You Use Your WayPoint PDA

1. Insert the main battery into the PDA.

    a. Remove the back cover by pressing the button sliding the cover down

    b. Insert the battery

    c. Place the cover on and press down to slide the cover in place. See figure below.
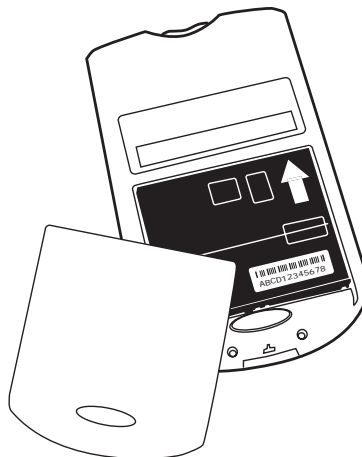
2. Before using your WayPoint PDA for the first time, you will need to use AC power to charge the battery. There are two ways to do this:

    a. Connect your WayPoint PDA to a wall outlet using the travel adapter.

    b. Plug the USB cradle into a wall outlet and dock the device in the cradle.

Please read the discussion on "Power" on page 16 for information on setting up the cradle or travel adapter for charging.

> ⓘ
> USB (Universal Serial Bus) refers to an con- nector on the front or back of your com- puter or peripheral device. It serves as a method for the data or power to get from the computer to the peripheral device.

3. Allow a total of 8 hours to fully charge your main battery and backup battery. You must fully charge the battery before disconnecting the device from AC power. the first time.

4. To prepare your WayPoint PDA for use, follow this simple procedure the first time you turn the device on.

    a. First, remove the back cover and battery.

    b. Locate the master power switch beneath the main battery.

    c. Unscrew the top of the stylus and use it to slide the switch from off to on. See the drawing on the next page.

    d. Put in the main battery.

    e. Wait 1 minute for the Welcome Wizard to be displayed.

    f. Follow the on-screen instructions to calibrate the screen and set up the operating system.

    g. Do not remove the unit from the charger during these steps unless it has been charged the full 8 hours.

5. There is a backup battery in the unit. It will be recharged from the main battery and is used to permit swapping the main battery for a spare without losing any information. You are likely to see a message about a low backup battery when you first turn the unit on.
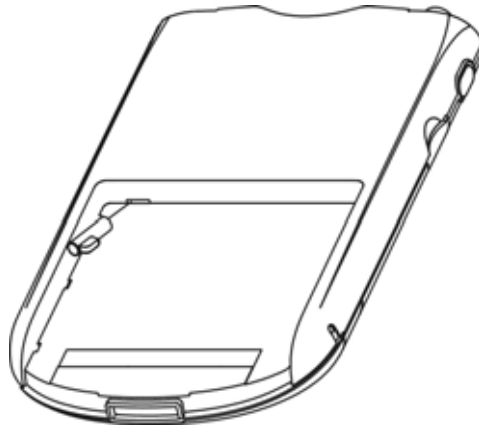
Slide the Master Power switch from off to on the first time you use your WayPoint PDA. Note the use of the top of the stylus as shown in the picture. Please note that the power switch must remain switched on when the WayPoint PDA is in use.

Power

Using Battery Power

Your WayPoint PDA features a main battery and a backup battery.

MAIN BATTERY

When fully charged, the main battery will provide enough power for more than 6 hours use under normal operating conditions, if utilized for standard PDA functions with minimum backlight use. However, the actual battery life is dependent on the type of use as some functions, such as the backlight, raise power consumption considerably.

The main battery is charged whenever AC power is connected, even if you decide to continue to operate the WayPoint PDA. However, connecting to AC power with the WayPoint PDA turned off results in a much faster charge time.

BACKUP BATTERY

The backup battery will ensure that no data or settings are lost when the main battery is removed or runs out of charge.

The backup battery is charged from the main battery or from the AC supply when the unit is connected to the power outlet. When the main battery is removed, the backup battery maintains power to the memory of your WayPoint PDA so that no data or settings are lost.

When the main battery is removed the backup battery maintains power to memory for at least 5 minutes to permit swapping the battery. If the main battery goes flat but is not removed, data and settings are maintained for 72 hours.

Your WayPoint PDA will automatically go into sleep mode when the main battery is removed and cannot be awakened until the main battery has been replaced.

BLUETOOTH GPS BATTERY

The WayPoint 200 includes a Bluetooth GPS receiver that can run from its built-in rechargeable battery. When fully charged, it can provide more than 8 hours of continuous use. It has a charging indicator lamp that will remain off unless charging is need. When the charging light lights, discontinue use of the GPS receiver until it can be charged as reception and accuracy cannot be assured.

Using AC Power

Connecting your WayPoint PDA to the AC power supply offers an alternative to using battery power. As well as allowing unlimited use of the WayPoint PDA while you stay connected, AC power also charges the battery, ensuring that the WayPoint PDA is ready for future mobile use.

The included AC adapter accepts 90V to 260V, enabling worldwide use with the appropriate local connector.

To charge the device using the AC adapter:

1. Connect the travel adapter to the charging/communications port on the base of your WayPoint PDA as shown in the picture below.

2. Connect the adapter cord to the adapter cord connector of the travel cable.

3. Plug the adapter into an AC outlet.

The power LED 🔋 shows flashing red while the battery is fast charging and continuous green light when the battery is in trickle charging at least 80% charged.
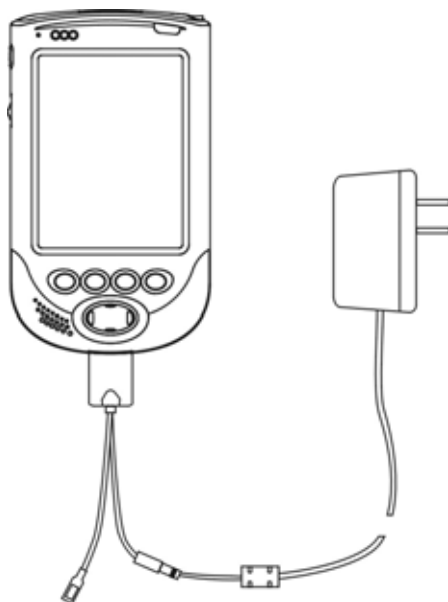
Direct Connection to the AC Power Supply via the travel adapter

! **Important!** You must fully charge the battery the first time you operate your WayPoint PDA. A full charge of both main battery and backup battery will take approximately 8 hours.

BLUETOOTH GPS CHARGING

The WayPoint 200 GPS receiver can also be charged using the same AC charger or via the included dual-charge cable. The dual-charge cable permits simultaneous charging of the GPS and the PDA. The Charging lamp will light on the GPS when it is being charged. This lamp will dim and finally shut off when the GPS is fully charged.

The dual charge cable is shown in the figure below.
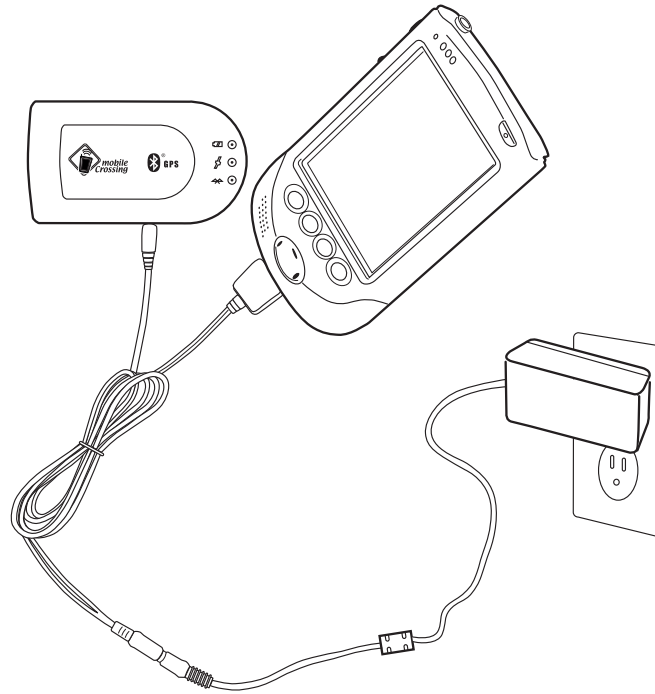
USING THE USB CRADLE

By keeping the USB cradle connected to the AC power supply, your WayPoint PDA can be charged whenever it is docked. Spare batteries may also be charged by inserting them in the cradle.

To connect the USB cradle to the AC power supply:

1. Insert the power cord jack into the DC-IN jack socket on the USB cradle.

2. Plug the adapter into an AC outlet.
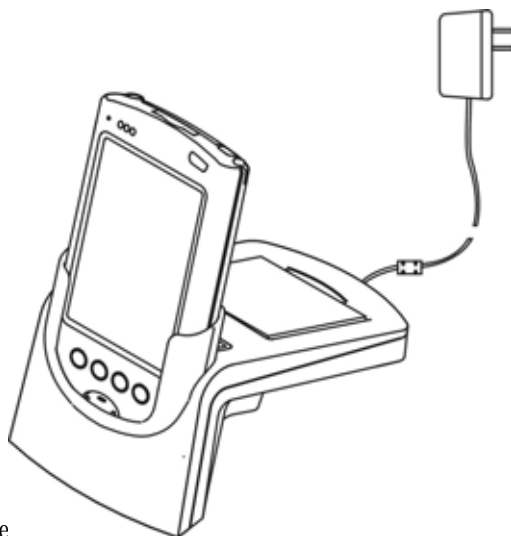
USB cradle

The cradle may also be used to charge a spare battery that is not installed in your WayPoint PDA. To charge a spare battery, place the battery in the battery bay after the USB cradle has been connected to AC power.

Using Vehicle DC Power

The vehicle mount consists of a powered cradle that houses the external speaker and holds the PDA as well as a gooseneck connector attached to a windshield suction cup. External power is brought to the mount with the supplied power cable. In the WayPoint 100 and 200 the mount supplies power to the WayPoint PDA though a short cable that plugs into the power/communication port on the bottom of the unit.

Use DC external power when the WayPoint PDA is in your vehicle. This can be supplied from a power (cigarette lighter) outlet via the vehicle PDA mount. Plugging the unit into the mount and hooking up the connector will pick up the power connection from the mount. The vehicle mount will keep the unit fully charged.

WAYPOINT 100 GPS POWER

The GPS derives its power from the PDA itself so as long as power is applied to the PDA the GPS will run. If the power is unplugged the PDA will continue to power the GPS from its battery.

WAYPOINT 200 BLUETOOTH GPS POWER

The WayPoint 200 Bluetooth GPS receiver can also be plugged into the vehicle PDA mount at the side of the mount to obtain external power. This allows unlimited use of the GPS receiver, but does require a wire between the two units. Some users may prefer fully wireless GPS

operation with the DC power cable serving as a backup when the GPS battery is low. The power cable will permit GPS operation while simultaneously charging the unit.

USB Charging

The batteries in your WayPoint PDA can be charged using a USB connection to a PC, even though the device itself is not connected to the AC power supply. However, charging the unit in this way is only effective when the unit itself is powered off and will take much more time. There are two ways of making a USB connection to a PC:

1. You can make a direct cable connection from the WayPoint PDA, using the supplied travel adapter

2. You can use the USB cradle.
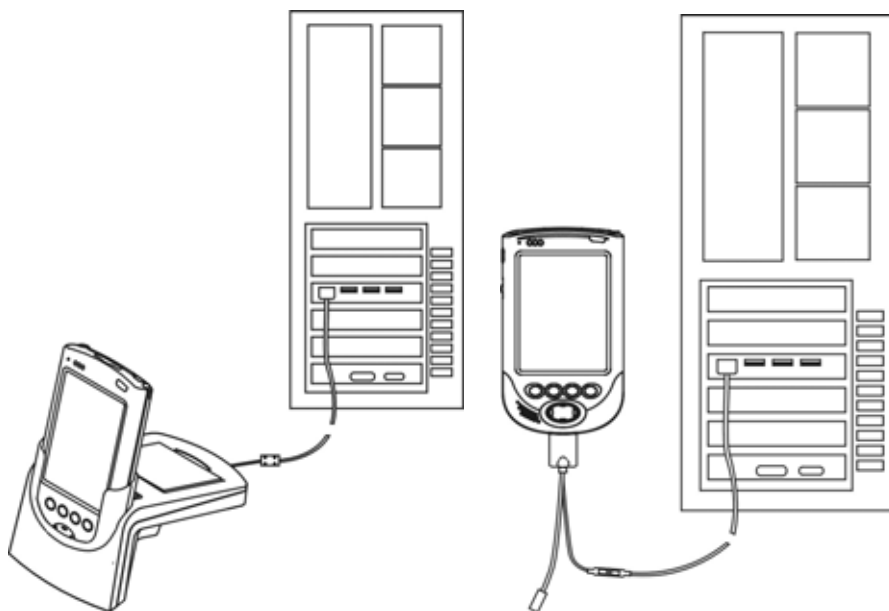
WayPoint PDA Connected to the back of a PC via the USB Cable on the left and the travel adapter on the right.

There are two types of USB hardware configurations used in PC's.

1. One type supplies a separate 5V power source for the USB power.

2. The second type derives the power from an internal bus.

There is only a limited amount of power available from a USB connection and sometimes this is divided among all the connections. Extension USB hubs are also available in two types; one has its own 5 Volt power while the second gets its source of power from the USB connection on the PC.

The WayPoint PDA cannot be charged effectively via a bus-powered USB hub. USB charging is only effective via a self-powered USB hub, or when the WayPoint PDA has exclusive use of a USB port. The PC itself must be powered up and the WayPoint PDA must be powered off.

If the WayPoint PDA is powered on the charging indicator will flash and the unit will receive some power from the USB hub but the unit will use more power than the hub can supply so the unit will still need some battery power and will not be charged. You can verify whether the unit is receiving a charge via the AC adapter or the USB connection by looking at the back of the stand. There is a lamp showing power is available for battery charging and it is only lit when the AC adapter is used.

Maintaining the Batteries

All programs, files, data and custom settings that you save are stored in RAM. This is a volatile storage medium requiring electrical power to remain operational. It is therefore essential that the WayPoint PDA receives a continuous supply of power, either from its internal battery or an external source, as any interruption will result in the RAM contents being lost. Although the operating system and pre-installed programs, stored in Flash ROM, will be unaffected, you will have to re-enter all other information.

SAFEGUARDING DATA

To safeguard your data, you should periodically back up your files. This can be done on a pc using a Microsoft program called ActiveSync. ActiveSync is included on the CD-ROM that accompanies your WayPoint PDA. This is described in the Pocket PC reference manual that is also located on the CD-ROM.

ⓘ
ActiveSync - The Microsoft software that interfaces between the PDA and a host computer.

There is a backup program supplied with your PDA that can use a CF storage card, an SD storage card, or the Flash Disk area to back up data or personal settings in PIM applications. See Chapter 3, "Backup" on page 37 for more details.

CHECKING THE BATTERY

You will receive a notification when the main battery level or the backup battery level is low when running on battery power. While running on batteries, you can check the remaining charge in either battery at any time by tapping **Settings** on the start menu, and then selecting the **System** tab and tapping **Power**.

If your battery is being charged you will not be able to see the state of the main battery without temporarily disabling the charging. If the battery is fully charged this will be shown even when power is applied.
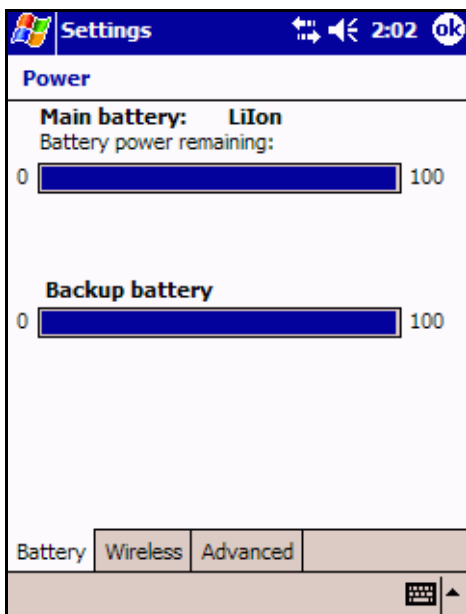
The battery settings screen is shown on the left. It shows both the Main and Backup batteries are fully charged.

When the backup battery is fully charged it will maintain power to volatile memory for at least 5 minutes if the main battery is removed. This provides ample time to swap a spare battery in place.

If the main battery runs out of charge, power to volatile memory is maintained for 72 hours as along as the main battery is not removed.

To remove the main battery, it is necessary to move the battery release switch on your WayPoint PDA to the release position and remove the battery cover. When the battery release switch is in the release position, the unit will automatically go into sleep mode and cannot be awakened until the main battery has been replaced and the release switch is returned to the original position.

Turning Your WayPoint PDA On and Off

Turning Your WayPoint PDA On

⏻ Your WayPoint PDA offers the convenience of *instant on*, enabling you to start work immediately without waiting for lengthy initiation procedures to be completed. To turn on your WayPoint PDA, press the power button, the recorder button or one of the 4 programmable application buttons.

It is possible to disable the feature of turning on the unit from the four (4) application buttons and the recorder button. For details see the Pocket PC reference guide included on the CDROM.

Turning Your WayPoint PDA Off
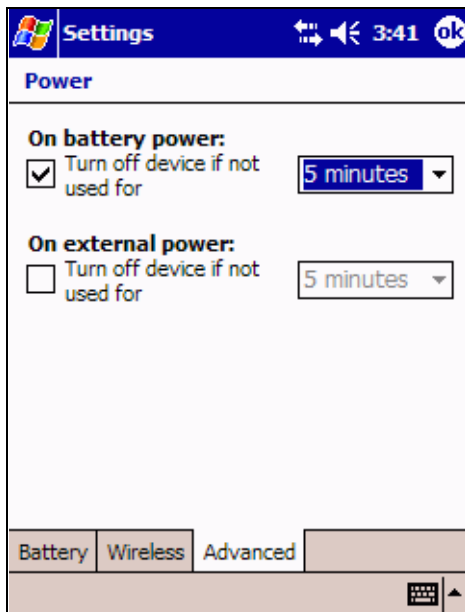
When you turn your WayPoint PDA off, the device will not shut down completely, but instead enters standby mode. Although power consumption is extremely low, the system clock continues to run and the RAM contents are maintained (see "Maintaining the Batteries" on page 22 for more information).

Furthermore, if you turn your WayPoint PDA on again within 4 hours, operation will resume where you left off the last time you used the device. After 4 hours the unit starts with the Today screen.

To turn your WayPoint PDA off, press the power button located on the front of the device

Your WayPoint PDA is set to turn itself off after three minutes of inactivity when operating on battery power. You can change these settings by tapping **Setting** on the start menu, and then selecting the **System** tab and tapping **Power**. The Advanced tab is shown above.

This setting can be overridden by the WayPoint navigation software. When a GPS is in use it is usually desirable to leave power on all the time, even when using batteries. See "Starting the GPS" on page 45 for more information.

Turning on your Bluetooth GPS

The Bluetooth GPS needs to be charged for at least an hour prior to its first use. It should be fully charged before removing power. A full charge will require up to 8 hours or even more if the unit is on.

Plug the GPS into the AC adapter. The charging light will turn off when the unit is fully charged. When used in a vehicle, the unit can be plugged into the DC power cable attached to the vehicle mount to prevent the GPS battery from running down. The unit may be used without the cable for full wireless operation. The battery life of the Bluetooth GPS is about 8 hours between full charges.

Vehicle Installation

The primary vehicle installation concern is user safety. Do not mount or install any of the brackets, devices, or cables in front of any air bag. Do not mount any object where it obstructs the driver vision. Do not route any cable where it interferes with the operation of the vehicle. Follow these steps to install the unit. (The illustration on the next page shows a WayPoint 100. Other models are similar.)
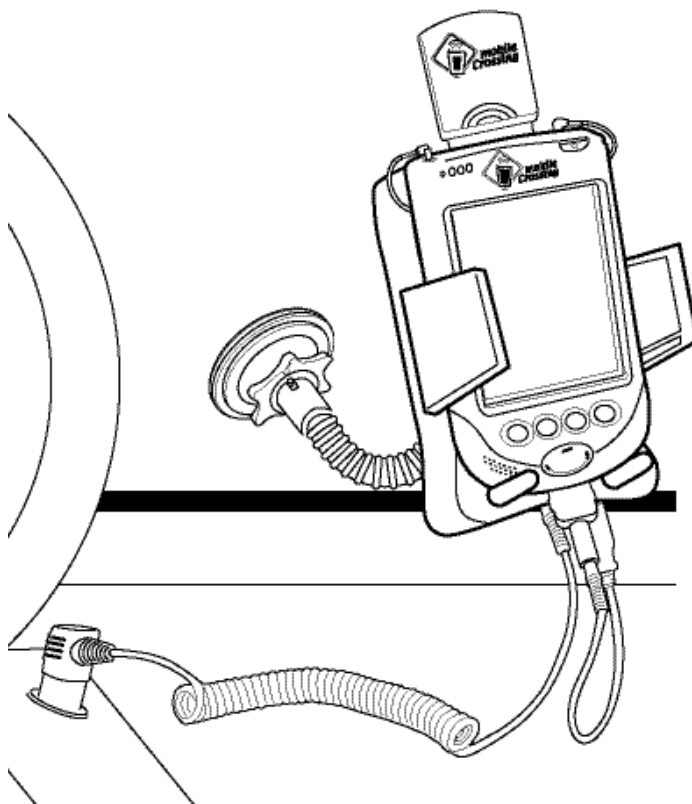
1. If you have a WayPoint 100 place the GPS in the CF slot.

2. Install the WayPoint PDA in the vehicle mount.

3. Plug the audio cord into the headphone jack

4. If you have a WayPoint 100 or 200 attach the power connector to the bottom of the PDA.

5. Find a suitable place in the car to mount the assembly. The figure above shows a WayPoint 100 with the full vehicle mount which includes the PDA cradle with external speaker, the goose neck, suction cup, and power cable.

6. The audio cord is shown attached at the top. This should be inserted into the headphone jack on the PDA to use the external speaker for clear voice instructions while navigating. A volume control is located on the left side of the vehicle mount.

The unit can be mounted to the left or to the right of the driver where it can be easily seen. The WayPoint 100 needs to be mounted where the GPS will have a clear sky view unless an external antenna is used. Consideration should be given to possible passenger use.

7. Once the location is chosen, the area should be cleaned so that the suction cup will stick.

8. Attach the suction cup to the windshield and twist the lock on the back to seal the connection. A tighter seal can sometimes be made with a damp suction cup.

9. Route the power cable down to the power (cigarette lighter) outlet and the installation is complete.

Installing the Bluetooth GPS

WayPoint 200 customers will also have to determine a location for their Bluetooth GPS unit. Placing the unit near the base of the windshield will ensure that the unit will have a good sky view for satellite reception. A Velcro strip is supplied that can be used to secure the location while providing the ability to easily remove the unit. Depending on your mounting location this may or may not be needed.

1. To attach the Velcro, clean both mating surfaces and attach the pad side to the bottom of the unit by removing the tape and attaching the sticky side of the pad to the unit.

2. Ensure proper operation before making the final location choice.

    a. Place the GPS in the proposed location and turn on both the GPS and PDA.

    b. Setup up the GPS connection to the PDA using the instructions in "Getting Started with Navigation " on page 43.

3. After ensuring the location has good reception, attach the hook side to the dashboard.

4. A power cable can be run from the cradle connector to the GPS to provide unlimited service. Full wireless operation can be used up to 8 hours on batteries.

Tips

Be sure and remove the WayPoint PDA when you leave the car. This unit is a tempting target for thieves. If your unit does get stolen, be sure to report this to the police and to Mobile Crossing. Mobile Crossing maintains a database of all registered units which may be useful in identifying your missing unit.

Inspect the suction cup from time to time by looking at it from the outside to ensure that it is still fully sealed against the windshield. It can be removed for use in another vehicle when you need to by twisting the knurled knob to release the suction and then prying the cup from the windshield. Always clean both surfaces before attaching to the windshield.
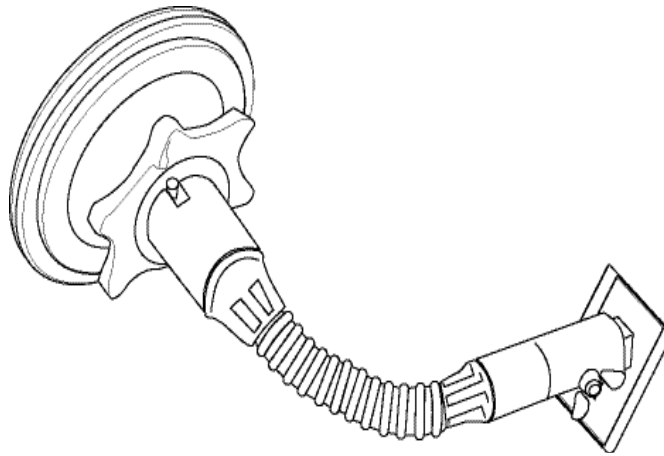
The WayPoint 100 GPS antenna is on the top of the GPS. It will work better if the whole unit is tilted back a little bit so it can get are view of the sky through the windshield. If it has trouble getting a lock you might want to find a better place to mount it. You can also just lay the unit on the dashboard until it gets its first lock. It will usually maintain the lock when you move it to the vehicle mount. If you continue to have problems you might want to consider an external antenna.

Basic Operation of the WayPoint PDA

This chapter is devoted to getting you started with the WayPoint PDA. The WayPoint PDA runs Microsoft Pocket PC 2003 Premium Edition. The full instructions for the use of this operating system and all of the applications that are provided with Pocket PC are in the Pocket PC reference manual which can be found on the Documentation CD-ROM. This chapter will provide a brief summary of the operation of the Pocket PC operating system.

Using the Stylus

The stylus is the primary method of data manipulation and data entry for Pocket PC use. For safety reasons, the driver should **never** use a stylus in a moving car. During car navigation other techniques can be used to minimize the need for the stylus. For example the large on-screen buttons allows the user's finger to be used. Hardware buttons have been pre-programmed to perform common functions.

The stylus is often the best tool for everyday PDA use and can be essential for text entry. Use the stylus to operate on and select items on-screen. The bullets on the next page describe the various ways to use the stylus.

- Tap the screen once to select an item.

- Drag the stylus to select text and images. In a list, drag to select multiple items.

- If the screen is not large enough to show the full data, try dragging the stylus off the edge of the viewing area to cause the data to pan.

- Tap and hold an item to display a pop-up menu listing available actions. (This is the equivalent of the right mouse button on a pc.) Tap your selection to perform the action.

The Screen Elements

The screen is usually divided into three sections. At the top is the Title bar, at the bottom is the Command bar, and the center of the screen contains the program data. Occasionally a program may remove the title bar and/or the command bar from the screen to get more display area.

The Title Bar

The Title bar is found at the top of the screen. It displays the start button , the name of the active program, the speaker volume icon and the time. The title bar also displays notification icons from time to time such as a low battery warning.

- Tap the speaker volume icon to change the volume level or to mute the WayPoint PDA.

- The can be used to leave the application.

- Tap the start menu to display the list of programs, and then select a program from the list.

Using the Menus

To open or switch between running programs using the start menu, tap on the start button in the title bar, and then select the program you want from the list. For example tap the **contacts** menu item to bring up the contacts list. In addition to the programs that can be started from the menu, there are icons representing the most recently started programs across the top of the menu. These icons can be tapped to restart a program or may be used to switch between running programs.

The Command Bar

New Edit Tools
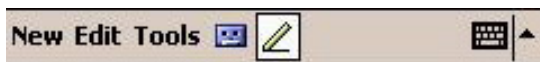
The command bar is always found at the bottom of the screen. It displays menu names and available buttons, as well as the input panel button. These controls allow you to perform tasks in programs.

- Tap a menu name to see its pop-up list, and then select an action on the list.

- Tap a button to perform an action. Tap and hold the stylus on a button to see the name of a button, and then drag the stylus off the button to prevent the action from being performed.

Entering Text

There are several ways to enter text with your stylus into your WayPoint PDA:

- Use the on-screen Keyboard

- Use the Block Recognizer which is similar to Palm Graffiti

- Use the Letter Recognizer which allows you to enter the letters similar to how you would print them yourself.

- Use the Transcriber where the stylus is used to write directly on the screen. Your handwriting will be recognized and converted to text.

Using the Input Panel to Enter Typed Text

The input panel can be used to enter text in any program. Tap the input panel button on the command bar to display the input panel. Tap the arrow next to the button to see the list of input options.

The following input options are listed:

- **Block Recognizer** - To select the Block Recognizer, tap the input panel arrow. For help with using Block Recognizer, tap the help button ?.

- **Keyboard** - The keyboard can be setup to permit a full 5 row typewriter keyboard or a keyboard with larger keys but requiring extra steps for some key functions.

- **Letter Recognizer** - Letter Recognizer allows you to use the stylus to write on screen, just as you would write with a pen on paper. After you write each letter it is converted to a text character.
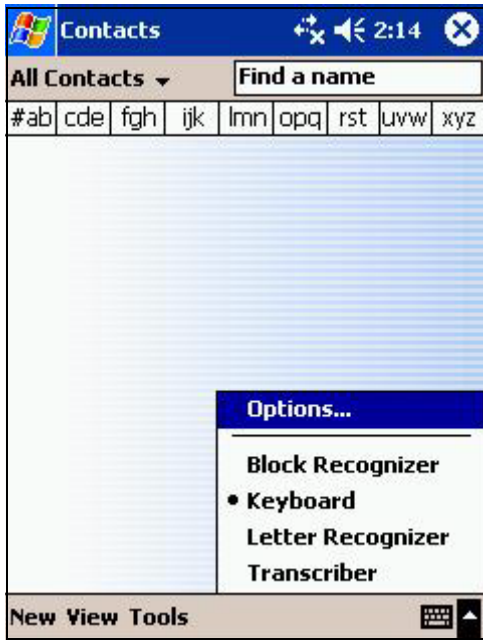
Tap the input panel arrow and select

Letter Recognizer. For help with using Letter Recognizer, tap the help button ?.

- **Transcriber** - Transcriber also allows you to write onscreen with the stylus. However, this method allows you to write blocks of information before pausing for the characters to be recognized. The transcriber does word recognition to aid in translating the on-screen writing.

Tap the input panel arrow and select Transcriber. A Transcriber Intro screen will be shown. Tap the help button ? for information on using the transcriber.

The input method will be shown as an icon next to the input method arrow. This icon can be tapped to bring the input area up or down. Generally when input is needed, the input area will appear automatically using the default or previous input method.

Other Methods to Work with the Screen

Using the Cursor Button

Use the four-way Cursor Button to move up and down, and side to side, when moving between on-screen buttons and controls. You can use this feature to scroll through lists of files and documents.

Using the Thumb wheel

Use the thumb wheel to move up and down when navigating on-screen buttons and controls. Press to make your selection. The thumb wheel can also be used to traverse any menu and to select items from it once the menu has been opened. In the navigation program the thumb wheel performs zoom-in and zoom-out functions on the map screen.

Using the Programmable Application Buttons

The Programmable Application Buttons provide a fast and convenient way to open your favorite programs. Press one of the Programmable Application Buttons to instantly open the application assigned to that key. By default the contact list is on the second button from the left and is represented by the icon above the button.

Entering a contact

You can use Contacts to keep important contact information on all your friends, colleagues and business associates. This information can be quickly shared with other mobile device users by making an infrared connection. The contacts address can be used with the WayPoint navigation program as a starting point or as a destination. The first entry you are likely to enter is yourself. With the contact application open, tap the **New** entry on the command bar.

- To enter the data for the new contact, tap each field.

- The down arrows next to the name field and address fields can be used to provide more structure to these entries if needed.

- There are three address areas. These are work, home, and other.

- There are several phone number fields. These include home, business, cell phones, fax machines, etc.

- To reach more entry areas, use the scroll bar or the cursor pad.

- Assign the new contact to a category by scrolling down to **Categories** and selecting one from the list.

Basic Operation

- When you are finished, tap the OK button on the Title bar.

- You can find contacts or groups of contacts by tapping **Find** on the start menu, and selecting **Contacts**.

- To display a contact summary screen, tap a contact in the contacts list.

- To change the information with a contact summary screen displayed, tap **Edit** on the command bar.

- To leave the application, tap ⊗ on title bar from the summary screen or just start another application.
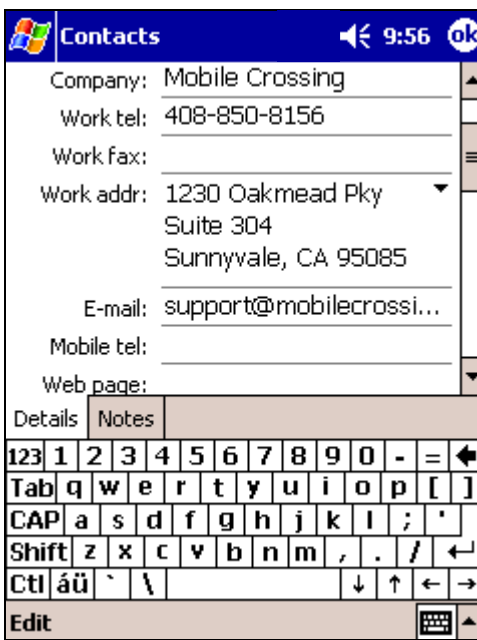
Advanced features

There are some interesting features available for Contacts from the tools menu.

- You can make a copy of a contact as a starting point for further editing.

- You can beam the contact information to another person.

- The WayPoint 200 has an additional feature. You can send the contact via Bluetooth. The Bluetooth option is only available from the summary list so tap and hold the entry to see the selection or use the Tools menu item. It is called: **send by Bluesoleil**.

Setting the Clock

A new PDA will need to have the clock set to the correct time and time zone. The time may need to be adjusted occasionally and the time zone will need to be changed if you travel outside your area. Use the following steps to set the clock:

1. Tap the Start menu and select Settings.

2. Select the System tab, and then tap on the Clock icon.

3. Tap the Time tab if necessary.

4. Set the time zone and adjust the time and date.

5. You can set up two locations, home and visiting, enabling you to work on local time when you make a trip without losing your home settings. Tap the **Home** or **Visiting** button to change the setting you want to use.

Basic Operation
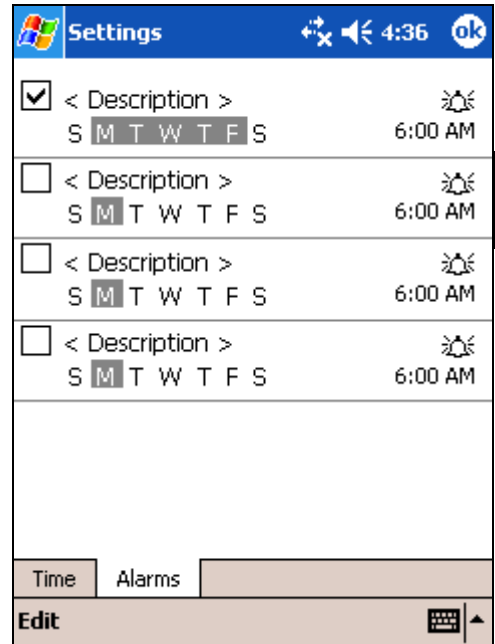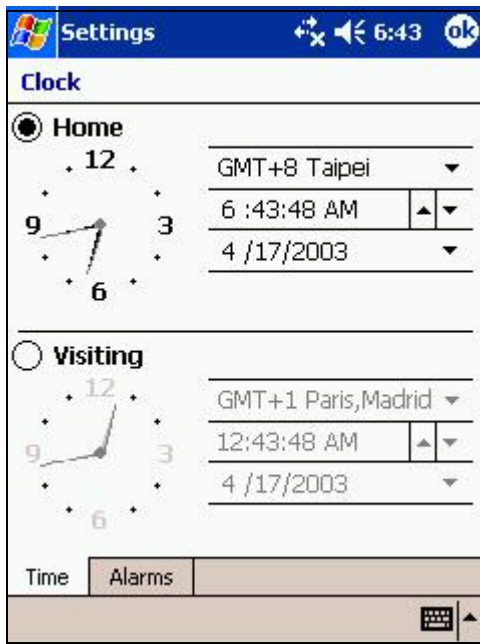
The clock will be maintained at the correct time from your PC when you activesync the unit or by your GPS when you have a fix.

Alarms

The clock also supports alarms. Clicking the Alarms tab brings up the display showing four alarm settings. As shown the top setting has an alarm set for weekdays at 6 AM. The checked box indicates that this is an active alarm. The days have been tapped to highlight the full week and the time is set. The time itself or the bell icon can be tapped to bring up the two screens on the next page.
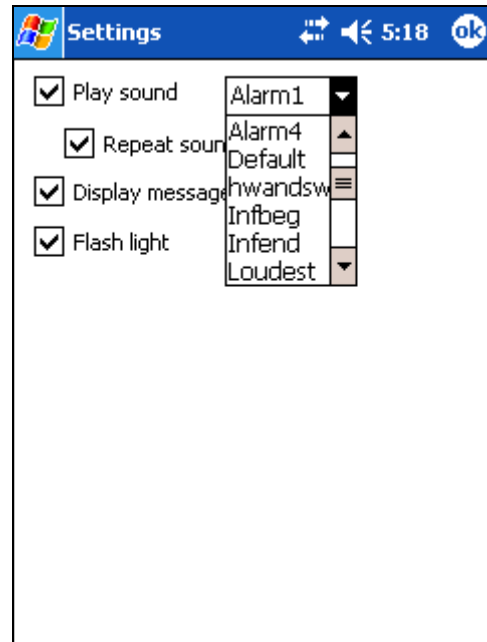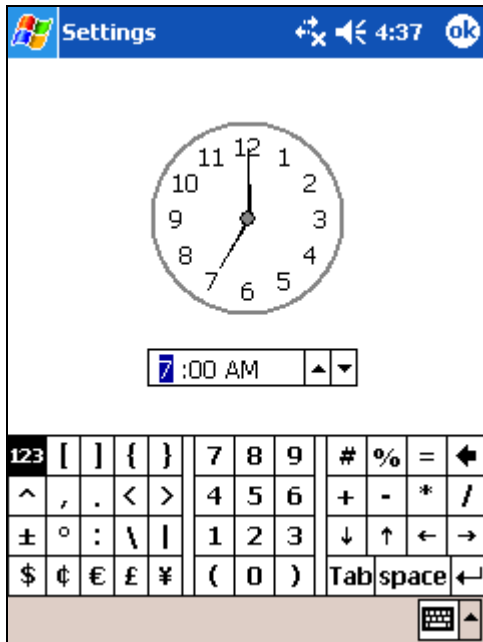
The clock itself can be changed by tapping the number and either tapping the arrows to modify it or using the input field to enter the exact value. Tap OK to return to the alarm screen.

The bell icon tap reveals the various alarm choices. The sound itself can be changed or turned off. Selecting an alarm entry causes it to sound momentarily. A visual alarm can be initiated with a displayed message and/or flashing the center light above the screen on the WayPoint PDA.

An alarm can also be set in the calendar application when a reminder for a special appointment is needed.

Owner Information

Use the start menu and system setting to reach the Owner Information icon. Tap on the Owner Information icon to enter your personal details. You can display a summary of the information when you turn your WayPoint PDA by selecting the box at the bottom of the screen. Tap on the Notes tab to enter additional information.

The Owner Information Screen should match the Registration information that was returned to Mobile Crossing. The name and E-mail address will be checked by the Traffic Watch program, if used. Being a subscriber of Traffic Watch will provide some security if the WayPoint PDA is ever stolen, since its location can be determined if the program is run by the thief. Please report thefts or transfers of ownership of your registered product. Also report a change of E-mail address to Mobile Crossing or update you online registration.

Backup

It is important to always have a backup of critical information in your PDA. There are two ways to back up the data on the unit. They are:

1. ActiveSync on the PC. (See the Pocket PC reference manual on the CD-ROM for more information on this solution.)

2. Gismo Backup on the WayPoint unit itself

Both have there place but for users that are away from home, or do not use a pc, an on board backup tool is critical. The WayPoint PDA uses volatile memory, meaning that if the battery runs down the memory is erased. Therefore it is doubly important to keep backups of the data contained in RAM (volatile) memory just in case. You may also want backups just in case you accidently erase something or make a change that you later decide needs to be un-done.

Note: If Gismo is not installed use the File Explorer and tap the Gismo cab file in \Windows to install it. The cab file is called GisMo_PPC.ARM.

To back up the full data perform the following steps.
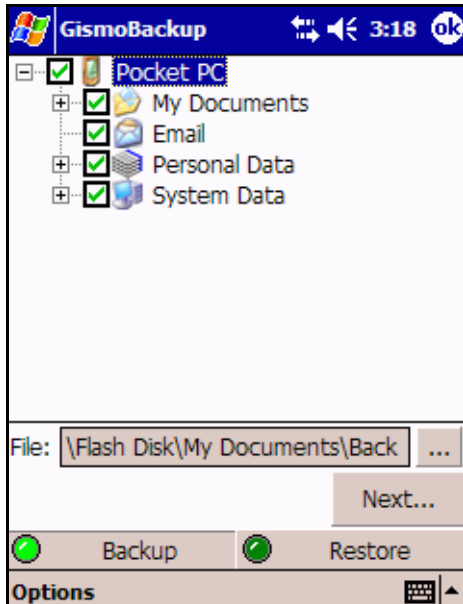
1. Start the backup program

2. The screen displayed at the left appears with all things selected.

3. Tap Next... to initiate the backup.

4. A confirming screen will appear. Tap **Start** to begin. The screen will display the progress.

You have just backed up all your data. All processes on your machine were also stopped and you took a lot longer to back up data you probably didn't care about. Making the backup more efficient is covered in the Backup Advanced topics below.

Once the backup is completed you can restore it at any time. Of course anything you restore won't have any of the changes you made since the backup.

Restore

To restore the data that you backed up you start Gismo again.

1. tap the ⬤ Restore entry.

2. A screen with no data on it will appear. The lamp icon on the **Restore** button will show you are in restore mode by turning yellow.

3. Tap the ... button to bring up a list of choices from your previous backups.

4. Tap the one you want. The screen at the right will appear. The essential data is now filled in.

5. To restore everything tap Next... .

6. Confirm the selection by tapping **Start** to begin the restore operation.
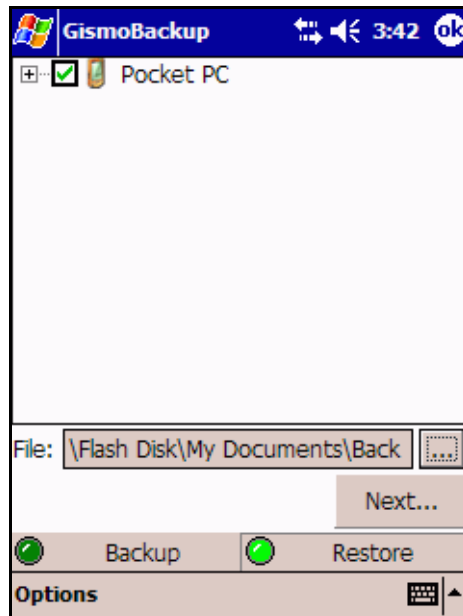
Choices

Generally you won't want to back up everything in RAM every time and you will usually only want to restore part of what you backed up unless the backup is caused by a complete battery loss. The screen below is similar to the first screen shown above except that the Personal Data entries and Option entries have been expanded by tapping the plus sign to show the contents. This listing is similar for either a backup or a restore.

The list includes everything that is stored in RAM on the WayPoint Pocket PC and by default all items are checked to be backed up as shown on the screen by the checkmarks.

For a restore the list shows everything that is in the backup file that was selected.

Smaller backups of less data can be useful to keep track of personal data that changes frequently or files that you are planning to edit but would like to be able to restore if the change doesn't work. Your personal data can be the most important item on the list and you may want to consider special backups of this data.

CUSTOM BACKUP

To backup just the data you want:

1. Uncheck the items you do not wish to back up. Use the + entry to show more detail about your choices. Check or uncheck the boxes until the exact choices are made.

2. If you wish to change the filename or location, tap the ... icon. Generally you will want to select somewhere other than RAM for your backup file. The filename should be descriptive. See more below under Advanced Features.

3. Tap   Next...   to initiate the backup.

4. A confirming screen will appear. Tap **Start** to begin. The screen will display the progress.

Advanced Features

In the System Data category is a check mark for the file system. Much of the file system files are actually in ROM but this setting will get all of the rest of them. The Registry is a special place used by the Pocket PC OS to store settings for programs. In particular this is a good thing to backup if you install beta software or other software that you don't trust so that if you have to remove it
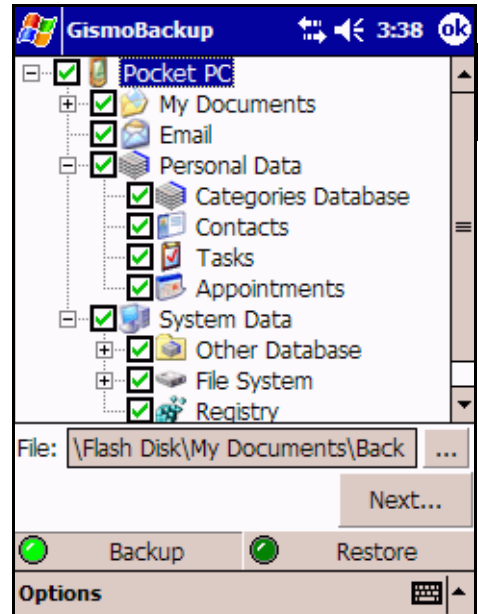
you can restore the Registry as well. The standard remove program often leaves entries in the Registry.

The backup file selection … Button permits defining the file name and file location. It brings up a form with 4 entries to fill in. These are:

1. Name: This is the name of the file. It should be descriptive of the contents and date.

2. Folder: This is the file folder that you wish the backup to be stored in. Tapping this will bring up a selection list.

3. Type: Gismo can store files in two formats. A .gbk file is the standard form, but you can also select a self extracting .exe file. This kind of file will automatically bring up the program to extract the contents if it is executed.

4. Location: This is the name of the media which defines the place that you wish to store or retrieve the backup. In file explorer this is the same as the top level directory name for extended storage locations. Tapping this will bring up a selection list. You must have the memory card installed to see it on this list.

The backup program works by building a compressed file in the Location and directory you specify. The file contains only the items that you selected. It can build a regular backup file or a little larger self-restore file. Self-The backup command can save your backup to any location that you may wish. It is a good idea to reserve an SD card especially for this purpose. While the program supports backups even to RAM (main memory), this should only be used for temporary saves.
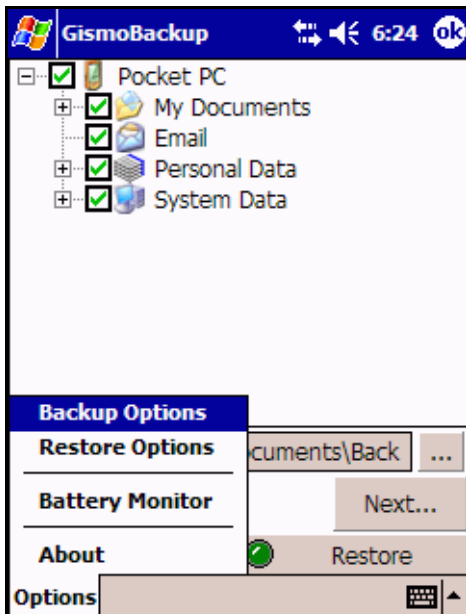
Note that you cannot backup SD or CF card contents with this program. The files on these cards will not get lost if the battery runs down, but the recommendation is to keep critical data backed up by temporarily placing a copy in RAM and using the backup utility. It is also possible to use file explorer to copy your SD card to a CF card to be used as backup. Similarly, the WayPoint navigation maps and programs are supplied on a Flash Disk. This is a non-volatile 128 MByte storage area in your unit. It is also a good idea to back this up by making a copy using file explorer to an SD or CF card.

The figure at the left shows the **Options** menu.

• The **Backup Options** include the ability to stop all running processes. This is important for a full backup since running processes cannot be safely backed up under some conditions. There is

also an option to exclude certain files from the backup (such as previous backup files or temp files).

- The **Restore Options** include the ability to stop processes and the ability to handle the start menu based on what is restored.

- The **Battery Monitor** feature can automatically back up data based on a battery level threshold. Thus if the battery starts to get low the unit can stop what its doing and save the state of your RAM contents. It can also be used to simply warn you about the battery status and can be set to whatever percentage you might like.

About Backups

It is easy to build backups that can eventually fill up your storage so it is a good idea to purge them occasionally. The file explorer command can be used to erase files. You should load your backup to ensure that it is readable by the backup program prior to deleting earlier ones. It is not necessary to actually execute the restore to verify that the file can be read.

Using Help

This was only an introduction to the many programs and features available within the WayPoint Pocket PC PDA. And, of course, you can customize it by adding more programs of your own choosing. The unit has an extensive help system built-in that can be used to explore the loaded programs and to review their operation when a manual is not present.

- From the TODAY screen you can tap **Start** and then select **Help** to view the full list of available help files.

- From within most applications you can get context sensitive help by tapping **Start** and selecting **Help** with the application running.

Once inside of help you can use the **View** command to reach the full installed help database or jump to the table of contents. There is a **Find** command to search the help file you are using. However, most of the time 'help' is designed with a table of contents and logical links so that a search is not necessary. The arrows on the command bar can be used to return back to the previous entry in the help tree.

The "WayPoint Pocket PC Reference Manual" and this manual are included as a tagged PDF files on the CD-ROM. Supplying pre-tagged PDF files permits users without ActiveSync to read the file in reflow mode on their PDA using an acrobat reader that supports reflow such as the one from Adobe. These files can be downloaded to the PDA for more extensive help.

ActiveSync

The installation quick start guide includes the optional installation of ActiveSync for PC users. The use of ActiveSync is covered in the WayPoint Pocket PC Reference manual but a few tips

on its installation are covered here. ActiveSync is optional and is not needed by your WayPoint PDA.

Users wishing to sync their WayPoint PDA with information on a PC will need to install ActiveSync from the included CD-ROM. They will need a copy of Outlook to perform syncs of their contact list and other PIM data. A copy of Outlook is also on the CD-ROM.

Users that already have Outlook 2002 or later or ActiveSync 3.7 or later already installed will not need to reinstall these products, however the WayPoint PDA will probably not be recognized by the previously installed copy of ActiveSync since it is a new product.

If your PDA is not recognized by ActiveSync when you plug it in then place the WayPoint CD-ROM in your CD drive and have it search the CD-ROM for the correct driver. Using the driver from the CD will permit your existing ActiveSync installation to work with the new WayPoint unit.

Getting Started with Navigation

WayPoint navigation requires a combination of resources which consists of the mapping application, a set of maps, and a GPS receiver. The first step is to set up the GPS receiver correctly.

WayPoint 100 users should plug in the CF GPS receiver. The lamp on the receiver will light, indicating that the unit is on, when the GPS is selected in WayPoint. The CF GPS receiver is on Com 3. The baud rate must be set to 4800. The lamp will blink when a GPS fix has been obtained. If the GPS is shut off via WayPoint or another GPS program the lamp will turn off.

WayPoint 200 users should find a place for the Bluetooth GPS within approximately 10 to 15 feet or so (no more than 30) of the PDA and with a clear view of the sky through the car windows. The following conditions will be noted:

- Turn the GPS unit on with the power switch and let it acquire a GPS signal.

- The blue light should flash indicating a Bluetooth network can be established between the unit and the PDA. The blue light flashes quicker after a link is established. A connection to the GPS can be established from the Bluetooth start menu. See "Bluetooth Operation" on page 83 for more information on setting up the Bluetooth network.

- The center lamp shows the GPS status. It will light when powered on and will flash when a GPS fix has been achieved.

- The third light shows the power status. It will flash when a battery recharge is needed. It will light steady when external power is applied and the unit is charging.

If you are hiking with this unit, the GPS should be placed as high on your body as possible, or hold the unit away from your body. The water in the human body effectively blocks the satellite signals in the direction of your body. If you place it in your pocket the GPS antenna must be facing out.

The WayPoint PDA should be installed in the vehicle mount for car use. WayPoint 200 users should start the Bluetooth radio and ensure a connection to the GPS receiver. This can be accomplished easily by selecting the "Start GPS" entry from the Bluetooth menu. Then follow the on screen instructions to establish the default connection. See the chapter on "Bluetooth Operation" on page 83 for more details.

Road Safety

Before launching WayPoint, road safety should be considered. A GPS navigation device is an important tool when used properly but it can be a distraction to the driver if used improperly.

- A stylus should **never** be used by the driver while a vehicle is in motion.

- The route should be set up ahead of time before the car ever moves from its parking place. It is possible to set up the route in your home with the GPS off if desired.

- Make sure the WayPoint GPS has your current location before starting.

- The driver should depend on voice prompts whenever possible and only occasionally glance at the screen.

- Automatic recalculations should help prevent any need to interact with the screen.

- If you have to deal with the program use your finger for a stylus.

- Use the buttons and the thumb wheel to the maximum extent possible. Depressing the Thumb wheel on the map screen selects the tools menu and the thumb wheel can be used to move up and down the menu itself and depressing the switch selects the item.

- The thumb wheel provides zoom in and zoom out capability.

- Pull off the road if you need to do anything complicated.

Mobile Crossing is not responsible for your actions. Use care when operating this unit. Note that, in the discussions that follow the term locations, landmarks, and POI (Points Of Interest) will be used interchangeably. They all indicate some object or location that you are interested in.

Starting WayPoint

The Mobile Crossing WayPoint navigation software can be started by pressing the right hand button on the face of the PDA just below the screen. It can also be started like any other program by tapping the icon on the start menu, if you prefer. You should install a map memory card if needed for your trip before starting the program. The program will open with a splash screen and then load the map display. While working inside the WayPoint navigation software, all

four of the hardware buttons below the screen are defined to do useful tasks. From left to right these are called Favorites, Detour, Status, and WayPoint. From the map screen the buttons work as follows:

	Press the Button	**Press and hold the Button**
Favorites	Navigate to one of your favorite locations. (See "Route to Favorites" on page 65.)	Save an entry in locations at your current position. (See "Saving your home location" on page 51.)
Detour	If no route then bring up the route form else Route with Detour. (See "Building a route" on page 63 or "Detours " on page 70.)	Navigate to nearby Gas Station, Restaurant, or other Location. (See "Take A Quick Detour" on page 65.)
Status	Check GPS status by displaying the GPS screen. (See "Starting the GPS" on page 45.)	Provide voice prompt with distance to and direction of next turn. Use this to repeat a message that you missed.
WayPoint	Go to previous application (Leave WayPoint navigation).	Start TrafficWatch & Weather Underground programs. Other quick start programs can also be configured.

The WayPoint button is the method of starting WayPoint navigation software and leaving WayPoint navigation software. The effect of the button is to toggle between navigation and another task.

Subscreen Button use

When viewing a subscreen such as the GPS information, pressing the same button again (or any of the left three buttons) will be the same as OK. Pressing the WayPoint button (which has no subscreen) performs a cancel.

Starting the GPS

After starting the software a connection should be established between the WayPoint program and the GPS installed above.

Press the GPS status button to reach the screen where the GPS data is displayed. One of the two GPS views shown below will be visible. The left and right cursor keys can be used to switch screens.
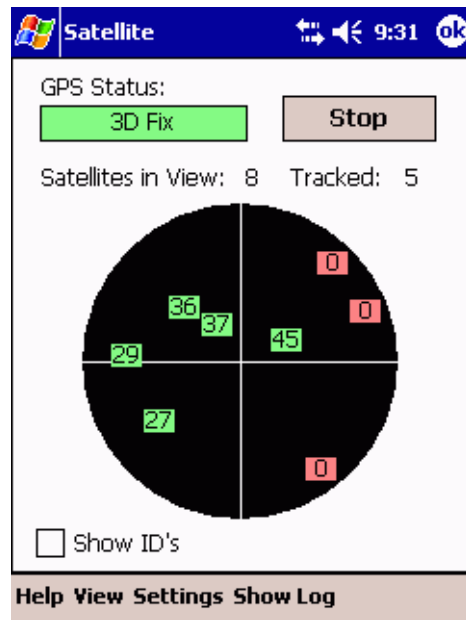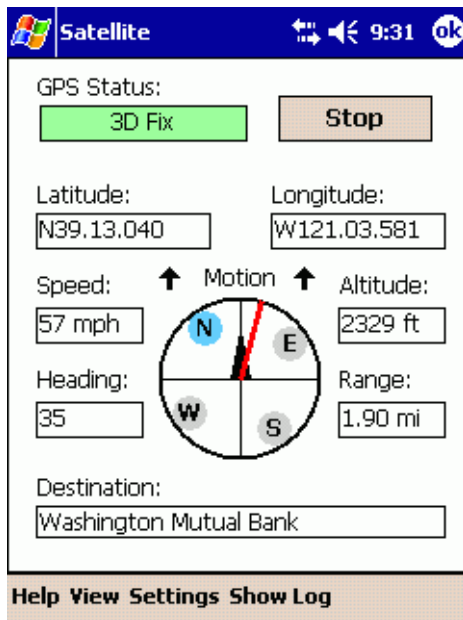
The GPS Data Screen

The GPS Data screen is shown above on the left. This data screen shows the GPS running and a destination selected. However, this is not likely to be the case the first time you run the program. The Satellite Map screen is shown above on the right. When you enter the GPS command either of these screens may be shown.

- Other things on the GPS Data screen include the current latitude & longitude, the altitude, the current speed, and heading. If a destination is selected then its name and the range will be shown. The center shows a compass like display with an arrow showing the direction of travel. In addition, if a destination is selected a red line will appear to show the direction to the destination.

- This screen is where the GPS is started or stopped. It can be restarted each time the program is started or you can set it up to automatically start in the WayPoint general program settings.

- The GPS status is shown here. This will indicate if a GPS is connected, if it is currently acquiring satellites, and if it has a fix. A 2D fix means that the altitude is not being computed while a 3D fix shows indicates more satellites are being used as part of the solution and the overall solution is likely to be more accurate.

Satellite Status

The Satellite Map screen can be chosen from the view menu or by the left/right cursor keys. It is shown above on the right. It has the same start/stop boxes as the data screen but the rest of the screen shows the satellite display.

- This is a nice screen to view if you are having trouble getting a GPS fix. You can use it to check for satellite reception. The display shows the various satellites in their approximate location in the sky with the top of the screen pointing north. The screen can display satellite signal to noise ratio (strength) or the satellite ID's. Most of the time the strength is what you want to view.

  In the figure, there are 8 satellites in view and 5 are being tracked. This does not mean that 5 are being used as part of the solution however. A tracked satellite may or may not be part of the solution.

  For example, the ephemeris data may not be downloaded yet or the satellite signal strength may not be high enough to use although it is being tracked. Generally, a value of at least 28 is needed for reliable reception on the WayPoint GPS receivers supplied with the product. One of the satellites shown in the figure has a value below 28.

  A minimum of 4 satellites is required to produce a 3D fix. More will often produce a slightly more accurate position.

- The first time you use your GPS you should find a place with a clear view of the sky, start the GPS and give it some time to find your current location. This initialization will allow it to get a GPS fix much faster the next time. It is better if you are not in the car for this step since the car itself may block some of the signals. See "Using the Cursor Keys" on page 49

GPS Settings

| GPS Options | ⚟ ◀€ 4:57 | ok |

GPS Settings

Port (See Help)   Baud Rate:

COM8: ▼   4800 ▼

☑ Disable Auto Power Off
☑ Auto-Scroll   ☑ Auto-Rotate
☑ Auto Zoom   ☐ Lock To Road
☑ Center View Forward   ☐ WAAS

GPS Data Logging

☑ Log Data

| Clear Log | 64 ▲▼ |

Help All Settings Defaults
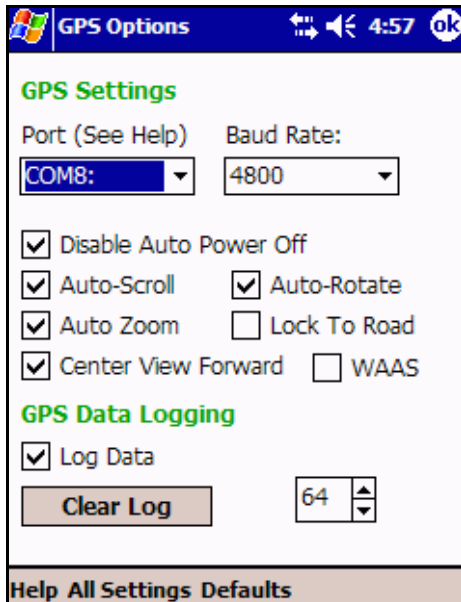
The settings menu item shown at the bottom of the screen should be tapped to show the COM port you need to select and the baud rate which must be set to 4800. Once the correct settings are made you can return to the status page to start the GPS.

- A WayPoint 100 should be set to COM 3

- A WayPoint 200 should be set to COM 8 (Perhaps 7 or 9 depending on the configuration, let the Bluetooth software pick the port.).

The settings menu choice is the place to choose the particular GPS settings and GPS options. Options include the ability disable power off and to automatically handle the screen so that you don't have to operate the controls while traveling down the road. Using the automatic settings are recommended.

- **Auto-scroll** will keep the GPS display on the map screen with the map itself moving underneath the GPS position.

- **Auto-rotate** will keep the map always point such that the current movement is toward the top of the screen. This will make the turns a head match the idea of left/right instead of dealing with compass headings.

- **Auto-zoom** will change the zoom setting as you get closer to a turn so that the turn will be shown with more detail.

- **Lock To Road** will cause the GPS position to be shown directly on the road even if there are errors in the map.

- The **Center View Forward** check mark relocates the GPS position so that there is more screen area devoted to the map ahead of you than behind you.

- The **WAAS** check mark enables WAAS reception for increased accuracy in areas where the WAAS satellites can be received.

- There is support for a GPS log that will keep track of your travels by saving GPS position data in a file periodically. It will wrap around if the file size is exceeded. It is a good idea to clear the log prior to starting a trip. The file can be reviewed later. Check "Using the Log file" on page 98 for more information.

- Press the GPS status ⟨②⟩ button a couple of times to return to the map page.

Using the Cursor Keys

The cursor keys can be used while looking at the GPS status screens. The left and right keys will rotate through the satellite status screen, the GPS data screen, the trip summary screen, and the GPS setup screen. Note that the trip summary screen is only useful if trip logging is turned on in the GPS setup screen. It provides data about the trip such as average speed, distance, number of stops, and maximum speed. A new trip is generated automatically if the stop time exceeds about 10 minutes.

Starting the GPS for the first time

The very first time you use the GPS or if you move the GPS more than 200 miles from the last location where it was used the unit will have to search the sky to find its location. This process can take up to 10 minutes to locate your position, or even longer if the unit does not have a clear sky view. The unit should remain stationary until it has a fix.

If you leave the GPS running in places where it cannot get a fix it may revert to the search the sky view even though it has not been moved. This is caused by the unit assuming it was moved a long distance since it couldn't get a fix where it is. For this reason the GPS should not be turned on and left to run in the house. It will recover from this condition the next time it is out of doors but expect it to take another 10 minutes or so. This condition can also occur if the unit loses track of time caused by leaving it off for a long period.

The following screen shots shows the "search the sky" sequence.

Getting Started w/ Navigation
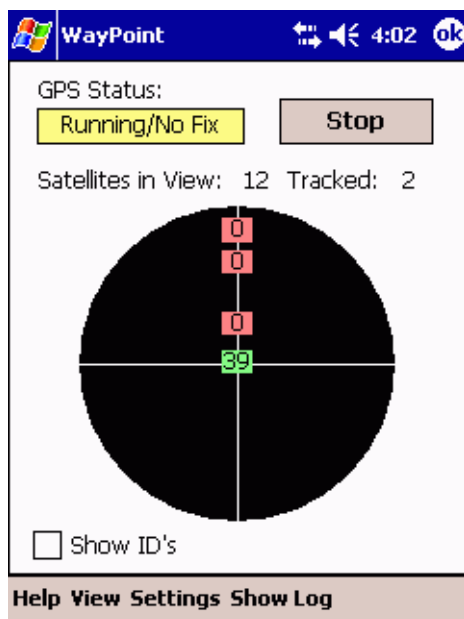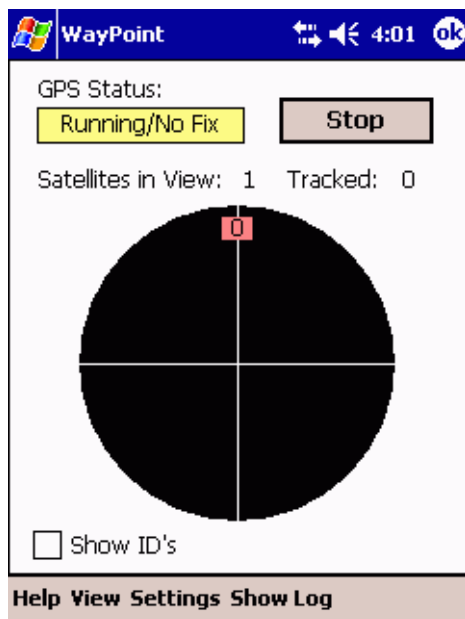
The first picture shows that the GPS is sending information to the PDA but no satellites have been found. The second picture shows that it has found some satellites but has no idea where they are in the sky.
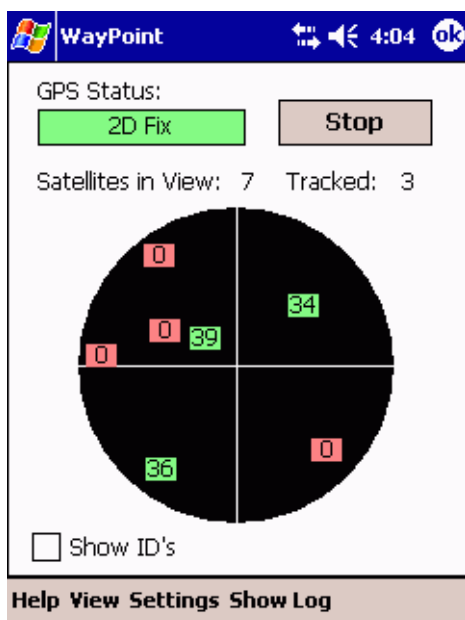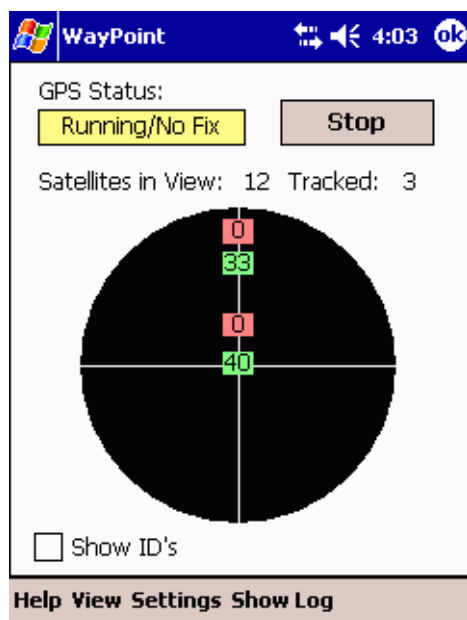
These pictures show that the GPS has acquired data from the GPS with information about their locations. Once the unit is able to compute a fix it will place the satellite locations in the correct place on the screen display. You can begin to navigate at this point but it would be better to wait for one more satellite to have a 3D fix.

Saving your home location

Once you have a satellite fix the GPS location will be displayed on the map as a small doughnut shape. The first things most users want to do is to save their home location. Having your home location stored away makes a lot of sense since it will likely be the starting point or destination for many of your trips.

- If you are still parked in your driveway or standing in your yard you can save the location by pressing and holding the favorites button ♥ .

By the way, why is it that people park in a driveway and drive on a parkway? Anyway, as soon as you release the button a screen will appear that can be used to record the location you just set.

- The only data you need to supply is the name which in this case is likely to be 'Home'. A default name that shows the date is automatically provided but you are likely to want to change it. In the figure on the left the date was cut and pasted into the additional information field and a new name entered.

- Other things can be entered such as a category and picking an icon but these things can be done later if you prefer.

- You can name your own categories, so a category like 'family' or 'residence' would be good choices. You can also just leave it blank or pick an existing category.

- If the data entry field (keyboard) is removed as shown above you will find some more of the form.

- You can select the zoom level used by the icon.

- Tap OK to save the point. You have just created your first Landmark.

You can create as many landmarks as you wish to mark GPS locations. They can also be created from the map without needing the GPS position. (See "Landmarks" on page 60.)

- Tap the location you just created (which may be under the doughnut) and a box will appear describing the object.

- Tap and hold on the box anywhere and a menu will appear.

- Select **Add to Favorites**.

Surely your home location will be one of your favorites!

You might notice that you can edit, move, or delete this point with this menu or set the Landmark as the starting point for the next big adventure. You can tap any object on the screen with similar results.

- Press the left button again (but don't hold it this time) and a menu will appear of your favorite landmarks will appear.

Notice that home is in this very short list. Actually the list can grow to eight entries. After eight, the bottom entry will be dropped off if you add any more. Use the organize function from the menu to keep your best favorites near the top of the list. The list can be used to select the target

destination for navigation, if it is displayed, by pushing the favorites ♡ button.

Add Locations to Favorites

There is an option to favorites that hasn't been mentioned so far. On the **Tools** > **Settings** > **program options** is a setting to automatically add Locations to Favorites. It changes the entire idea of *favorites* to be *recent* instead. The 8 most recent locations will be maintained in the favorites list, which can be handy if you don't care much about keeping favorite locations. It is also a good way to collect locations initially without having to make them manually.

If you want both you might consider making a favorites category in your locations database. Remember that only the last 8 locations are saved in the recent list so you will want to make a copy of them in the Locations database if you want to keep them permanently.

1. Tap on the sign post icon to bring up the list of favorites.

2. Tap the one you want to save in your locations file. The screen will display this location in the center.

3. Tap the location to bring up the text display.

4. Tap and hold on the display to bring up a menu that includes **Add Landmark** to add this location to your landmark file. You will not be given this option if the location you chose was already in your landmarks file.

Where to from here

At this point in the discussion users are likely to want to go in several different directions.

- Some will want to jump in the car and drive around after getting familiar with the map screen and how to use it. For them the next chapter to read is Chapter 5 "WayPoint Operation" on page 54 (the next page).

- Others may be much more interested in creating some routes and finding out how the route engine and navigation works. They should jump to Chapter 6 "WayPoint Navigation" on page 61 and read about their new favorite topic.

- If you would rather just see examples with step by step instructions with minimal text then try Chapter 7 "Step-by-Step" on page 73.

Of course, you will want to read all of the chapters eventually.

WayPoint Operation

Once the WayPoint Navigation program has been started and the GPS connection has been establish you are ready to view the maps and operate the program. You can view the help file if you need to review the operation of any command. When the map screen has a local map loaded and you are zoomed in quite a way, it will look something like this:

The Map Screen
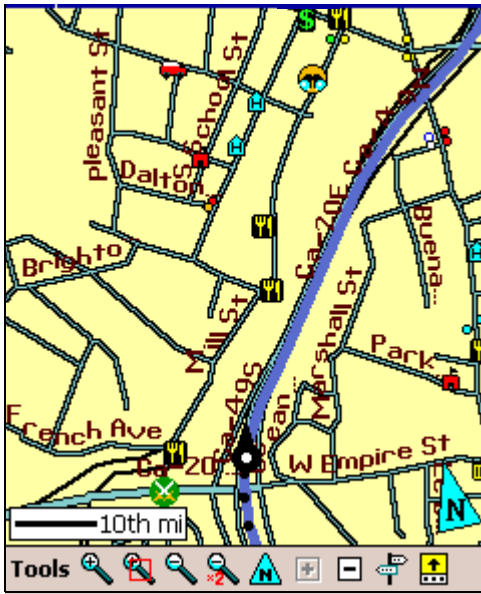
The screen display to the left shows your current location, if a GPS is in use, as a circle with an arrowhead on it indicating the direction of travel. The color can be customized by the user.

The banner has been removed to show more map area. This is a configurable option. If you remove this title area you will need to leave WayPoint or bring up a a subscreen to use the system menus.

Other items that can be seen are an optional scale (lower left corner), and points of interest (POI's), such as hotels and restaurants, which are also called landmarks. Note that some of the POI's do not have icons so they are shown as small circles on the map. As you zoom out all of the POI's will be shown as small circles.

An arrow near the right bottom corner of the screen shows the direction of North.

The map can be panned in any direction just by touching the screen and dragging it in the direction you want to go, or you can use the cursor keypad to do the panning.

As you travel the GPS position will remain almost stationary and the map will travel under it. The location of the GPS icon is an option. As shown it keeps most of the screen ahead of you. You can set it to be in the center of the screen if you wish. The two black dots just visible behind the GPS icon are the end of an optional track log.

Another option is to have the screen oriented with the direction of travel toward the top as shown here. That way all of the turn directions can be left and right. You could elect to always have north or the direction you choose at the top. This can be useful if you are trying to match the map display with a paper map.

WayPoint Command Bar
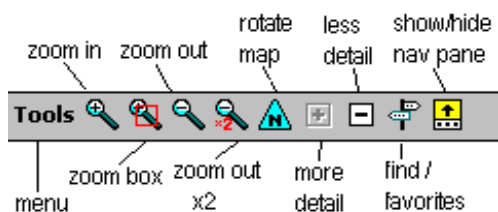
Across the bottom are the Tools menu selection and several icons.

• The two at the left are for zooming in (one fixed amount and one variable)

• The next two are for zooming out (fixed amount and twice the fixed amount).

- It is better to use the thumb wheel when traveling in a car to do the zooming.

- A map rotation button is next. Tapping it brings up a compass rose which can be used to rotate the map just by tapping the location you want to be at the top.

- The next two icons are the plus and minus and are used to control the amount of detail present in the map. They can be tapped at any time to reduce clutter (-) or show more detail (+).

- A signpost is next for finding locations and quick selection of your favorite places.

- The last icon permits full screen maps or maps with a pane at the bottom with additional data on it.

The Navigation Pane

The Navigation pane can be turned on or off with the **nav pane** icon. It contains important data for the user.

The navigation **pane** is where all the navigation messages are shown or, when not navigating, it will show the street name you are traveling on along with the direction you are traveling and upcoming cross-street names or exits.

Tapping on this pane will return the map to the GPS position if you happen to scroll it away. The screen on the left shows a map with the information pane enabled. The name of the street you are traveling on is shown along with the name of the next street ahead and its distance ahead is shown.

A small drawing shows the direction of the street if it is a T or will show it as a cross street. Even the angle of the street is shown. These values are updated as you travel down the road. This small drawing will show the relative direction even if the main map is set to north up.

The Tools Menu

All of the menu selections are on the Tools menu and are listed below. The **Tools** menu could be tapped, however, the best way to reach the **Tools** menu is to press the thumb wheel. The thumb wheel can then be used to select the entries as well. The commands on this menu include:

Exit – A command that stops the program. (The ⊗ in the top bar leaves the program running). In particular the Exit command stops the GPS.

Help – A command to bring up the online help screen. This is an online reference manual for the program. All of the commands and options are covered.

Settings – This menu brings up the customization settings (covered below)

Landmarks – A menu that provides the ability to define your own Landmarks (POI's) or view the ones you have already defined. (covered below)

Distance– The distance calculator will show the distance between two locations on the map. You can even trace the route on the road and it will show the distance covered.

Find – This is the main find menu, a subset of which is repeated on the sign post icon. (covered in the Navigation chapter "The Find Approach" on page 67)

Navigation – This is the main menu to set up and manage routes. (covered in the Navigation chapter "WayPoint Navigation" on page 61)

GPS – The GPS command: provides GPS status and control. (covered in the "Getting Started with Navigation " on page 43.)

Choose Map – A command that is used to manage maps. (covered in "Advanced Topics" on page 92.)

Display and Control Options

As discussed in the GPS section, the GPS position icon can be set to lock to the road position. However, if it you don't select that option most of the features acts as if it was on anyway. Tapping on the map:

- Always snaps to the nearest road or object.

- Draws a little house to show the snapped location on a road.

- Displays the address in a box.

- Optionally it can display the name of the city, the latitude/ longitude location, and speed zone for roads.

Tapping the box removes it or it will disappear automatically if you scroll or do anything else with the screen. You can tap and hold on the box to bring up a menu that can be used to work with that object such as setting it as a destination or add it to your favorites.

Tapping a POI object shows information about the object that includes the data about its location, its name, and perhaps a phone number. If it is one of the Landmarks you defined, it will display your comment data.

You can also touch and drag the screen to pan it in any direction.

Using Hardware Buttons

Most of the important commands have already been programmed to a hardware button.

- The cursor pad can be used to pan the map (when not navigating).

- The thumb wheel can be used to zoom in and out. Pressing down on the Thumb wheel will select the tools menu and the thumb wheel can be used to select entries from the menu.

- The 4 hardware buttons under the screen are all pre-programmed to do useful things.

It is important to take advantage of these features, as it can be dangerous to use a stylus while driving down the road.

Customizations

Customizations are reached from the **Settings** command. Once you select any customization you can move between settings using the cursor left and right keys. Customizations include:

- Map Features

- Program Options

- GPS Options - see "GPS Settings" on page 48

- Routing Options - see "Routing Options" on page 69

- Navigation Options - see "Customizations" on page 71

- Map Colors - see "Color Customizations" on page 59

- Sounds - see "Sound Settings" on page 72

Map Features

Map Features covers the display of information on the map screen. You can choose to show a Scale Bar, Street names, city/town names, city boundaries, landmarks, and a GPS trail (track log must be on). In addition you can choose additional data to be displayed when tapping an object. This data includes coordinates, city name, and speed data for roads.

Program Options

Program options include the ability to:

- Show Splash Menu at Start

- Activate GPS at Program Start

- Auto Add Locations to Favorites

- Use Metric Units

- Hide Pocket PC Title Bar

Color Customizations

Customizations include the ability to show certain optional data on the screen, change the displayed units, and the screen colors. There are two sets of screen colors, one for day and one for night. The marketing department thinks you might not realize why there are two choices. It is dark at night and the day colors could be too bright. The day screen is on the left.

Each of these settings is fully customizable to contain just the color scheme you prefer. The GPS icon is set to red if a GPS signal is lost. Making this red all of the time would mask this feature.

The color option can be set to automatically switch between the day screen and the night screen at dawn and nightfall.

Landmarks
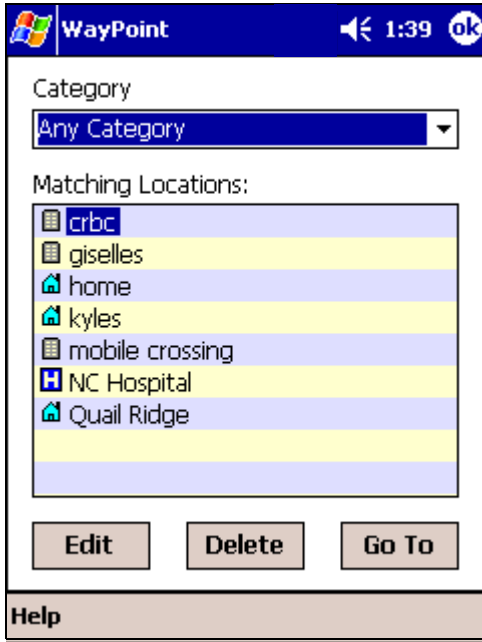
Landmarks1 is the name for a personal database that contains Landmarks created by the user.

- These can be used for personal places like the homes of your family.

- They can also be used to supply the locations and names of businesses that are missing from the map database.

As mentioned in the last chapter, this is where the information is stored when you press and hold the left button. However, these locations can also be entered directly from the map using the command **Tools** > **Landmarks** > **Add Location**.

If you select an address on the map by tapping on it and then create a landmark, that address will be shown in the comments.

The command **Tools** > **Landmarks** > **Show Locations** will display the screen shown at the left. Any of the entries can be edited or deleted from this screen. Tap **Go To** to view the location on the map.

Categories can be the same as the ones in the POI database supplied with the WayPoint or they can be new ones that you make up. If they are the same as POI categories then the entries will be mixed in with other items of that category when you are searching.

You can send the database to your friends or upload it to the Mobile Crossing forum with a descriptive name and others can use it for viewing with their maps. However only the one default file can be used for adding information to the database.

WayPoint Navigation

Navigation is the ability of the program to guide you to a destination. In its simplest form, it is just an arrow pointing the way toward the destination. This was shown in the GPS display "Getting Started with Navigation " on page 43 where a direction was shown 'as the crow flies'. A slightly better version of this air line navigation is represented by the **pilot data pane** which can be found on the **Tools** > **Navigation** menu. It looks like this:

SPD	HDG	BRG	RNG
002	214°	011°	5.40
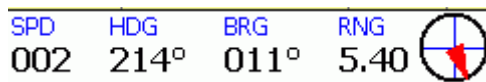
Speed	Heading	Bearing	Range	Compass
Current speed	Direction of travel	Direction to the destination	Distance to the destination	Shows the direction needed to get to the destination

This is called the pilot data pane since it is perfect for a pilot. It is also useful when you are on a commercial airline that permits you to use your GPS. On the ground, you may wish to use it for Geocaching. For more see "Geocaching" on page 97.

Road Navigation

Most users a likely to want something a little more capable for road navigation and this section covers these features.

The display below shows WayPoint providing turn-by-turn instructions on the screen. In this case, there are two turns coming up that are very close together. The program senses this and displays both turns to alert the user. Normally there will only be one turn indicated in the navigation pane.

Note that when the user selects turn by turn navigation by calculating a route this navigation pane will replace any other selected pane as soon as the system needs to display a message.

There is a user option to control the size of this information pane. The smaller of the two sizes is shown in the picture.

Voice prompts accompany the visual data and allow you to keep your eyes on the road. The voice prompt repetition rate near a turn is adjustable. There is also a Turn Assist provided by the Alarm lamp on the front of the unit. When the turn message appears the lamp will start flashing. As you near the turn the flash rate will increase to indicate that the turn is closer.
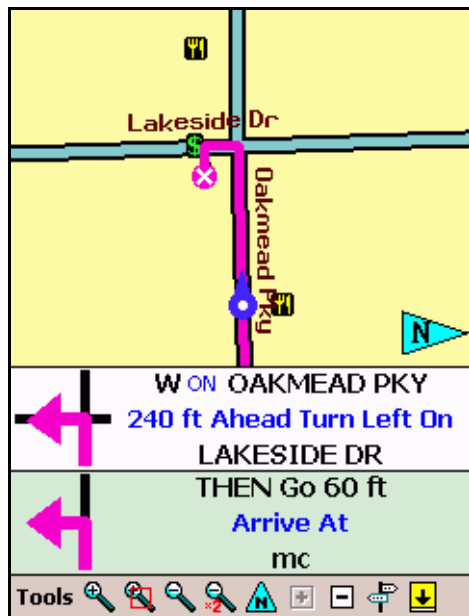
Navigation Pane

Some of the power of this banner display may not be obvious at first. For example, suppose you are stopped at a light and wanted to study a difficult turn that is still quite a bit ahead of you. When the navigation pane is active the cursors keys can be used to walk you through the various turns in the route providing the turn instructions and the map for the turn.

Use cursor right to travel forward through the list and cursor left to back up. After several seconds of inactivity, the display will revert to the GPS location or you can tap on the pane to return to the GPS location. Note that the route instructions will also be shown if you lose the GPS lock, your GPS is turned off, or you are not using a GPS.

If you tap the full screen icon in the lower right corner to remove the navigation pane, you can use the cursor pad to scroll the map. This will work even if you are selecting a different place on the route. Tapping the icon again will turn the pane back on.

ETA

The bottom of the pane can show an optional line that contains the time to go and the distance to go as well as the estimated time of arrival, ETA.

ETA is computed based on the distance to go and the speed classifications of the roads on the route. It generally does a good job of providing the answer to the question: "When are we going to get there?" It is updated as the trip progresses. It is also useful in showing the cost of a traffic jam in time lost by comparing the new ETA with the earlier prediction.

ETA is displayed based on your local time setting. If the destination is in another time zone you can use the Visiting entry on the clock settings (**Start** > **Settings** > S**ystem** > **Clock**) to set the destination time zone. This will cause both the ETA and the internal PDA clock display to use the Visiting time zone value.

Building a route
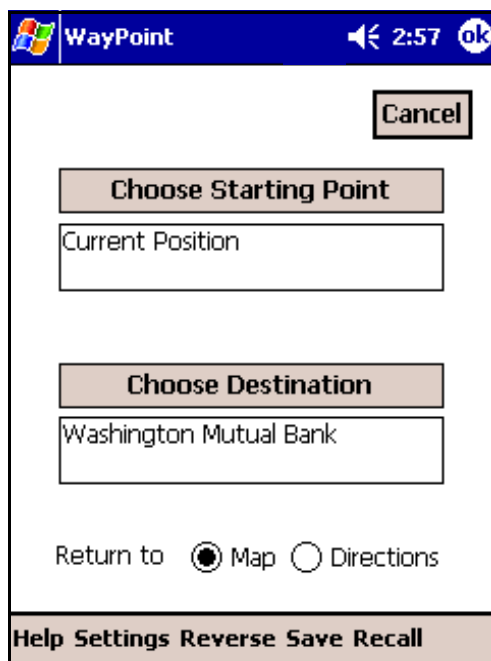
To build a route using the loaded maps, you only need to supply a starting location and a destination. Often the starting location is the current position as determined by the GPS so you only need a destination. The automatic router will find the path from the starting point to the destination.

There are two approaches to route creation. From the **Tools** menu they are called **Navigation** and **Find**.

Direct Navigation

◇ **Tools** > **Navigation** > **Find Route** is the more direct approach. It takes you straight to the Find Route screen where you can choose the Starting point, choose the Destination, and kick off the route by tapping ok. If there is no existing route then the same command can reached more easily from the Detour button.

Choose Either Starting Point or Destination to bring up a menu that contains:

Select Address	Full and partial address will work here	
Select Landmark	This includes all points of interest and user defined landmarks	
Select Intersection	Two cross streets	
Select Contact	From your address book	
Find on Map	The graphical approach – The map should be displaying the correct place before the Find Route is given.	
Use GPS Position	current location	

WayPoint ◀€ 2:57 ok

Cancel

Choose Starting Point

Current Position

Choose Destination

Washington Mutual Bank

Return to ⦿ Map ◯ Directions

Help Settings Reverse Save Recall
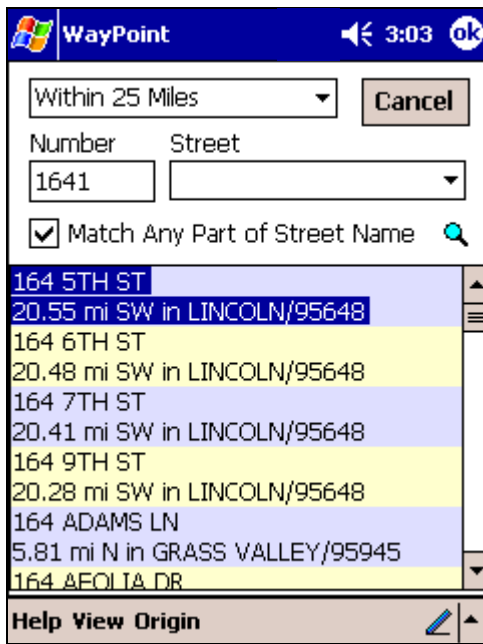
The first three choices bring up similar screens to enter the required data. Of course the individual data on the screens is different but approach is the same. The address screen is shown at the left as an example.

You can search the entire database or you can restrict the data geographically or by category or both. You can restrict the search:

- To a distance within 25 miles of your location

- To an area that is displayed on the screen

- To a zip code

- To a city

Other specific Step by Step flows can be seen in Chapter 7, "Step-by-Step" on page 73

An important feature that is easy to overlook is on the **View** menu item shown on the command bar.

- You can sort the results alphabetically or by distance.

- You can also choose to show the distances and address in the search results.

Being able to sort the results by distance means it is easy to find the next filling station or restaurant depending on whether the car or you are hungry.

THE SEARCH 🔍

Selecting a category or specific street data will cause the program to start searching as indicated by the appearance of the spy glass icon. This icon will blink while the search is in progress.

- You can further limit the search with data in the third field. It is ok to add data while the search icon is blinking.

- As soon as you see the data you want tap ok. When the search is complete the spy glass icon will disappear.

Select the **Origin** menu on the command bar to tell the program where it is to search. You can restrict the area based on the map view, the GPS location, or any of your favorite locations.

Searching for intersections is a two step process. First search for one street and the unit will offer a list of choices for the second street that intersect the first. If you don't see what you want, try reversing the entries.

CONTACTS SEARCH

Selecting **Contacts** lets you search through your address book. WayPoint will copy a list of the address book entries to a form within the program. Specific Step by Step flows can be seen in Chapter 7, "Step-by-Step" on page 73.

- There must be an address listed for you contact for the address search to work.

- If there are two addresses it will present the choice of work or home.

- Select the address you want and tap ok to begin the search.

Occasionally the form of the address in the address book will not match the form needed by WayPoint. If this happens the location will be identified but the search will fail. You can try editing the address entry being shown on the search screen to give it a clearer address.

Generally the search works best with less data. One wrong character will cause the search to fail but leaving out letters or even whole words will not be a problem for the search algorithm. Once it presents a list of possible choices you can simply select the correct one.

If you are able to find the address this way you might consider using the displayed form in your contact list so that future searches will be successful.

The Quick Approach

There are two hotkeys preprogrammed to facilitate quick routing.

ROUTE TO FAVORITES

Tap the Favorites ♡ Button to navigate to one of your favorites. Selecting one from the list will kick off the router and route to that location from your current location. You must have a GPS fix for this to work. Specific Step by Step flows can be seen in "Step-by-Step" on page 73.

TAKE A QUICK DETOUR

If you are driving and need some Gas or Food the Quick Detour function can be handy. It is also a good way to find close by locations.

Press and hold the detour ⬌ button for a couple of seconds and the category screen will appear as shown on the next page.
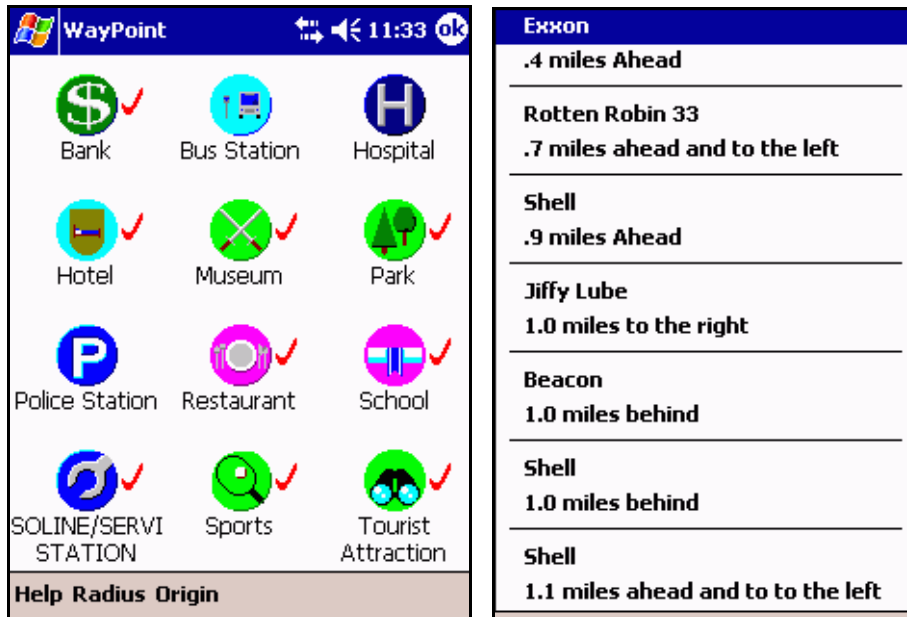
Tapping one of the icons will bring up a short list of locations matching the category along with their distance and direction. In the example shown above on the right the nearest gasoline stations are shown.

- The name of the business as well as the direction will be shown as you might want to skip those that are behind you.

- Note that if you are stopped the GPS may not be reporting the correct direction so it is best to do this command while you are moving.

- If you don't have a fix the unit will tell you cardinal directions to the location rather than relative direction.

- Tapping an entry will route you to that location.

- If there is not a check mark by your choice you may want to increase the radius.

This is a quick way to choose from among your favorite categories and will only offer choices that are within a prescribed radius of your location (or an origin that you choose).

As shown the check marks indicate that there is an entry for that category available.

The search radius can be defined from ¼ mile to 20 miles in approximately 2X increments using the **Radius** menu on the command bar. The value is remembered once it is set.

Specific Step by Step flows can be seen in

It is not possible to show all of the categories in the database but this screen can be customized to show the ones you wish. If you tap and hold on the category you will be able to change the category to any of those available in the database. You may want to keep important and useful categories on this screen.

- Getting to a Gasoline station in a hurry could be a high priority.

- Finding a Restaurant is usually one that you would want to keep.
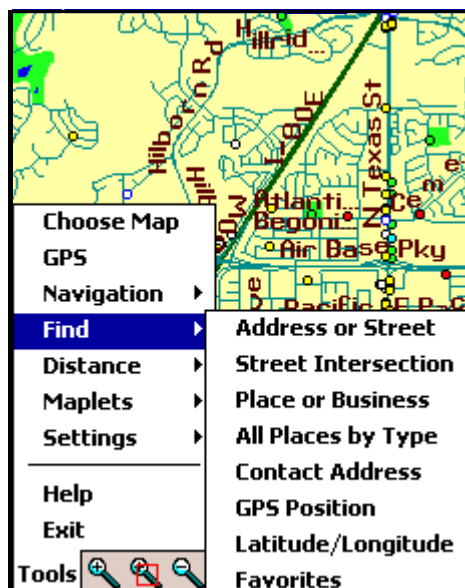
- Route to nearest can be really useful for getting to a hospital or the closest police station.

- The category list even includes those from your own Landmark database.

The Find Approach

The Find approach is used when you wish to find and display the object on the screen and then call the router. This method is a little more flexible if you aren't sure which of the many locations in a chain of stores you really want.

Many of the most used find commands plus a list of your favorite locations are available from the signpost icon on the command bar. All of the choices are available from the menu.

Click **Tools** > **Find** to bring up the menu of the full find options.

Once you have found the object you are interested in it will be shown on the map. You can tap it and then tap the description to set it to the starting point or the destination.

Find > Latitude/Longitude is useful for looking at a location that matches a paper map.

Find > Favorites is one of the choices on this menu. The favorites list can be managed with this command. Items can be moved around or deleted. The Favorites list is also available by pressing the **favorites** button. The favorites button choice will kick off a route to the favorite location.

The **Find** > **all places by Type** choice brings up the same screen and holding the Detour button down for a second. However, in this case it will bring up a map showing nearby locations that match the category chosen. This is a great way to just scan through the "yellow pages"

graphically for something you might like. Just set up a radius and then select the type you want. The map will appear with all the points of interest for that category highlighted with their icons.

See "Step-by-Step" on page 73 for examples showing the use of most of these search choices.

Your personal locations can be searched as well although they are not on the find menu. Use **Tools** > **Landmarks** > **Show locations** to bring them up. You can select categories similar to the ones for points of interest or you can make up your own. Items can be edited or click to 'goto' to center the location on the screen. It is then a simple matter to make it the destination using tap and hold.

Once you have used find to pick your spot you can tap the detour button to bring up the **Find Route** form. It will have the destination you selected already filled in. Alternately you can use the **Navigation** > **Find route** command to automatically route to it by tapping ok.

The Route

Once you have generated a route you can look it over or just start following it. You can also revisit the **Tools** > **Navigation** > **Find Route** command to:

- save the route for future use. to

- reverse the route to get back home.

- Recall a route you saved earlier.

Recall and **reverse route** do not try to use the whole route you set up earlier. Instead they simply use the start and finish points plus any 'route through' points (described below) to generate a new route.

GUIDING THE ROUTER

If you don't like the route that the program chose you can request a modification. When a route is active you can click on a place on the map and tell the router you want to **route through** that location. Press and hold on the description to reach this choice.

This is a powerful tool that will guide the router to go in the way you wish. These intermediate points are saved when you save the route so they are completely reusable. You only have to tell it once.

Multiple **route through** locations can be added to the route. Multiple locations would allow a complete route to be set up with multiple stops.

When a route through location is determined a small circle is added to the road at that point. This circle can be tapped to remove the route through point if desired.

ROUTING OPTIONS

Another way to guide the router is through the **Tools** > **Settings** > **Routing options**. You have control over the router in that you can tell it how quick to produce results. Thus, you can trade off calculation speed that may not find the optimum route for a more exhaustive approach.

You can tell the router to avoid toll roads to save money when other routes are just as good. The other choices are shown in the table below:

Freeway Use	Fastest Route	Shortest Route
Neutral to Freeway use	Normally the best choice	Provides an alternate route.
Prefer Freeway	Good for travel through a bad neighborhood. Likely to compute results more quickly.	Good choice in outlying areas where the road classification may not be correct.
Avoid Freeway	Good for taking the scenic route. Use for motorbikes.	Best for walking or bicycling

Routing with **fastest** selected causes the Router to use the speed of the road in determining the best route. When routing using the **shortest** route the router assigns all roads to the same speed.

The Directions Screen
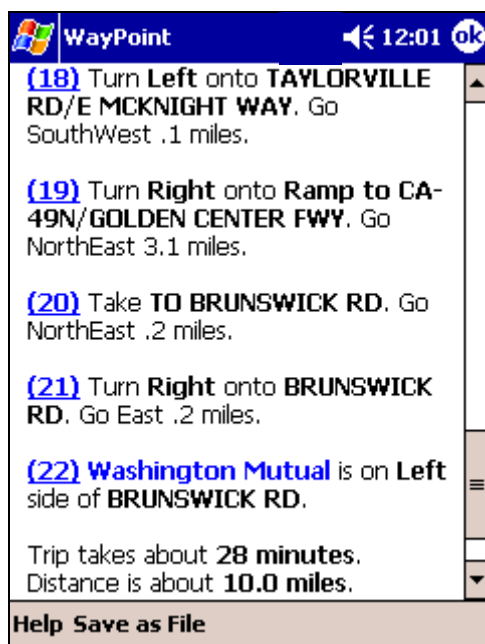
When a route is active the cursor buttons can be used to scroll though the various turn instructions. There is also a route screen that can be used to see the full instructions. This screen can be reach from **Tools** > **Navigation** > **Show Directions** menu.

The directions screen shows each of the turns with distance and turn details. A trip summary appears at the end of the list showing the distance and estimated driving time. The directions can be saved as a file and beamed to your friends in a caravan.

The route can be scrolled using the cursor key to show each and every turn. The numbers show exactly how many turns are required. They are live in that if you tap on them they will display the map showing the turn.

WayPoint Navigation

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If you are navigating and bring up the directions screen the current leg of the route will be shown at the top of the screen.

Tapping ok will return to the active map screen.

Navigating the Route

Once you are satisfied with the route, you can just start following it. Even if you are not completely happy you could just start driving anyway. WayPoint will detect when you are off route and will generate a new one from your current location so eventually it will route the way you want to go whether you went off route intentionally or by accident.

The main features of the route guidance features were covered in "Road Navigation" on page 61

Detours

⬦ The detour button can be used to generate a detour if you get into a traffic jam or find the road impassable. Tapping **Detour** will bring up a table of choices for the distance to avoid. These include ¼, ½, 1, 2, 5, and 15 mile increments. Tapping one choice will cause the router to regenerate a route that tries to avoid the specified distance or so of the current route. (Remember that the thumb wheel can be used to perform the selection.)

- On a normal surface street this may cause the router to request an immediate U-turn.

- On a freeway it will initiate a route that takes the next exit.

- It is possible that the route that takes the exit may just route the unit right back on the freeway, particularly if you were quite a ways from the exit when you tapped it. Selecting a longer distance will help prevent this.

- But if you see that the freeway is still clogged just press the detour button again when you get to the crossroads of the interchange. This will cause the router to avoid the entrance ramp just ahead.

- The detour button is designed to be interactive. It can be pressed as many times as you wish to try out the alternatives. Each time you press the detour button it starts over from your current position and does not remember items from the previous time you pushed the button. It is likely that it may find the original route again under some conditions.

The detour button can also be used to silence an annoying re-routing message. If you decide to change the route just be driving off the current route the voice prompt can sometimes take a long time to determine that you really wanted to change the route. Tapping the detour button will tell the program of your real intentions.

Other Navigation features

You can also suspend the route if you wish and return to it later by tapping the command **Tools** > **Navigation** > **Active Route Guidance**. Pressing the detour button will turn it on again.

When Navigation is on the WayPoint unit will warn you about upcoming turns by voice and a flashing light. If you have the navigation pane on you can see the turn instructions. The amount and frequency of the announcements are customizable on the Navigation Settings form. The voice instructions and the flashing light will occur even if you suspend the program to look at something else or even run a different program.

You can press and hold the status ⟨?⟩ button for a second at any time to hear a message about the next turn. It will tell you the distance to the turn and direction of the turn.

If, for some reason, the GPS reception is lost the Navigation pane reverts to showing the route turn instructions so you can continue to use the map and route instructions. A Red panel appears to alert you to the fact that GPS reception was lost and the doughnut icon showing your last position will turn red. When GPS reception is regained the navigation begins again from wherever it finds itself. You might have to tap the banner to get the GPS position back on the screen.

Customizations

There are many customizations to permit the guidance to be tuned to the user's preferences. These include the already mentioned Voice prompt settings as well as changing the size of the navigation pane, making it automatically appear, showing the ETA (Estimated Time of Arrival), as well as some GPS options. ETA is a really useful banner for predicting arrival times. It uses the speed data from the road classes to predict an arrival based on the remaining distance. To ensure that the GPS and PDA agree as to what time it is the PDA will automatically be set to GPS time.

The GPS options of particular use while navigating include

- auto-scroll

- auto zoom

- auto-rotate

- lock to road - This changes the behavior of the GPS position indicator.

- center the view forward

This last setting offsets the GPS position from the center of the screen to make more information available about the route ahead.

SOUND SETTINGS

Sound settings include customizing the beeps and sounds associated with various navigation notifications. First turn, Turn Coming, Turn Complete, Re-route sounds can be customized. There is also a setting for Special Notices.

In addition notifications are available for GPS change in status. Fix acquired and Fix lost can be set independently.

The various sounds can also be turned off if desired. Sound choices include standard Pocket PC alarms and unique WayPoint navigation sounds.

Speed alert can be set to sound at a specific speed.

Voice volume can also be changed here or by using the system volume settings.

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Step-by-Step

This Chapter contains step by step samples to do specific tasks in the WayPoint navigation software.

Quick Routes

Quick Routes always route from your current location.

Route to a Favorite Location
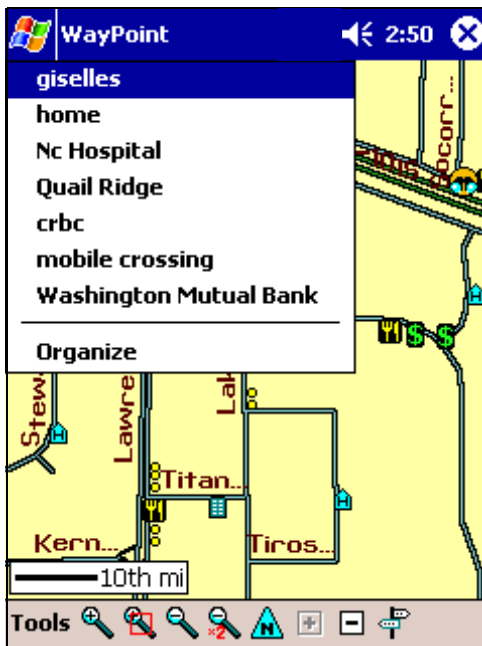
You can generate a route to any of your favorite locations.

1. Press the Favorites Button

2. Select a location from the menu that appears.

You must have a fix for this to work.

Quick Route
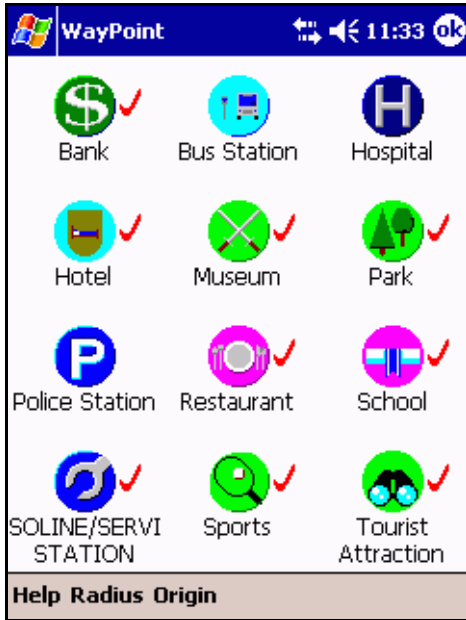
You can generate a route to the nearest Gas Station or the Nearest Restaurant. or other specific category.

1. Press and Hold the Detour button for a second.

2. Tap the category you wish.

3. A menu will appear for you to select from a list of close by locations. The direction will be indicated as shown below. The check marks indicate that there is a nearby entry for that category.

4. Tap the one you wish to generate a route to that location. Tapping outside the box will cancel the command.

The categories shown on this screen can be customized to be any available category in the database.

Other Routes

For other routes you need to start with the **Tools** > **Navigation** > **Find Route** command. If there is no route active it can be found on the detour button which normally does the detour command when you are navigating a route.

The first steps are always the same.

1. Tap the **Choose Destination**

2. Select a Choice from the menu.

Notice that your favorites are listed among the choices. If the **Find Route** form already has data on it from a previous route then you will also need to tap the **Choose Starting Point** to change it. Choose **Use GPS Position** for the starting point.

Route to an Address

Perform the first two steps above and tap **Select Address**.

3. The top left corner box contains a selection. Choices include Within 25 Miles, Anywhere, Current View Area, A list of all loaded towns, and a list of all loaded zip codes. Pick what you want. You can enter the first letter to aid in searching the dropdown list.

4. Enter the search data using any of the available entry methods. You can start with the number or the street name. The Search spy glass will appear to show that a search is in progress.

5. When addresses begin to appear you can scroll to select one or just enter more data to trim the list. Scrolling can be done with the scroll bar, the cursor key, or the thumb wheel but you will need to tap the field to scroll since the top field can also be scrolled.

6. Tap OK with the one you want highlighted. The list can be sorted by nearest or in alphabetical order.

7. Tap OK on the route form to kick off the route.

Route to a Landmark
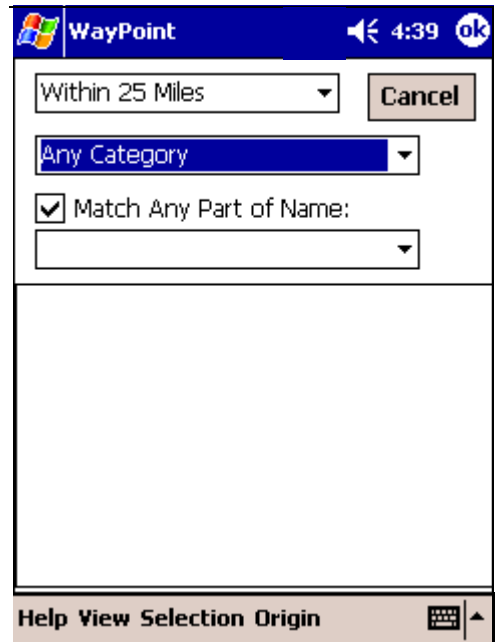
Perform the same two starting steps and tap **Select Landmark**. A landmark can be a point of interest, Business, Rest Area, Government facility, Tourist Attraction, or some place you saved in your own locations database.

3. The top left corner box contains a selection. Choices include:

   - Within 25 Miles.

   - Anywhere.

   - Current View Area.

   - A list of all loaded towns.

   - A list of all loaded zip codes.

   Pick what you want. Entering the first character can help to move rapidly through the list.

4. Tap the category or name field to limit the choices.

Step by Step

5. Select the Category you wish. You can move more rapidly through the list with the keyboard by entering a few starting letters. You can also tap this entry field and use the cursor key or thumb wheel to move through the list.

6. Find the one you want, either scroll for it or enter a few characters in the name field. The name field also has a pull down list of recent places you picked.

7. Tap OK with the one you want highlighted. The list can be sorted by nearest or in alphabetical order

8. Tap OK on the route form to kick off the route.

Route to a Contact

You can route to an address in your contact list. Perform the same first two steps above and tap **Select Contact**.
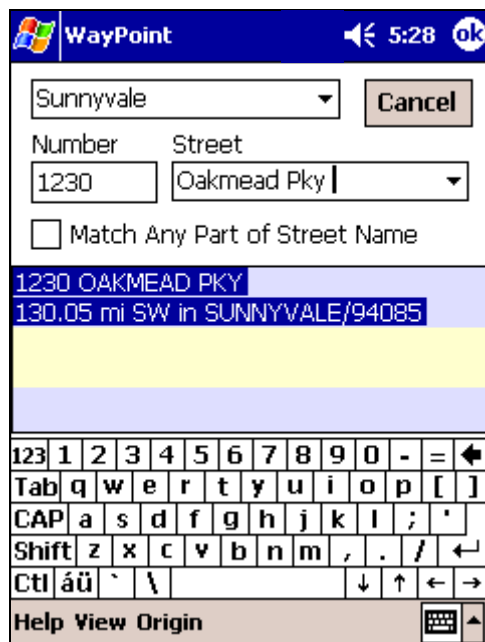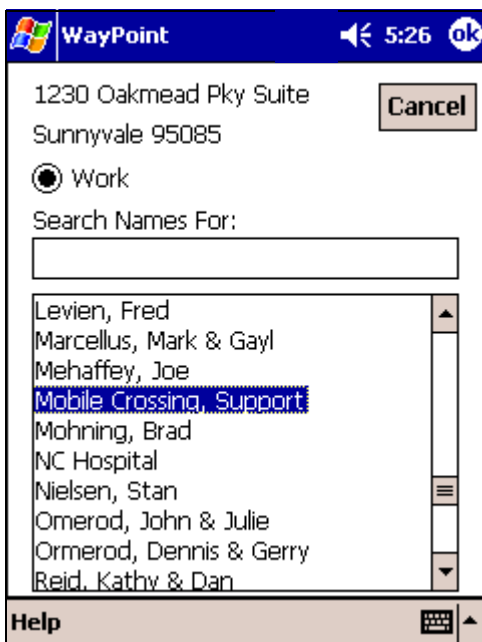
3. Select the correct entry from your contact list. You can scroll or search the list. If the entry has two addresses a second button will appear to permit you to choose which one you want.

4. Tap ok to allow the program to search for your address. If successful a list of choices will appear on the next screen. If you get a no match error you can try to modify the address a bit. For example, you might pick a different town or edit the street name. Remove any suffixes on the address and apartment numbers.

5. Once you have the correct address selected, tap OK to return to the route screen.

6. Tap OK on the route screen to generate the route.

Step by Step

Finding Locations

Another approach to routing is to find the location first. This is especially useful when you aren't sure of the location name or haven't quite made up your mind yet.

Finding a Location Graphically

You can find a location graphically and then route to it. Let's suppose you are driving east on I-80 somewhere near Fairfield and decide you need gas. Here is one way to proceed.

1. Select **Tools** > **Find** > **All Places by Type**. This will bring up the screen shown below on the left. (Note that this screen also appears in the "Quick Route" on page 74 command description but the subsequent behavior is different.)
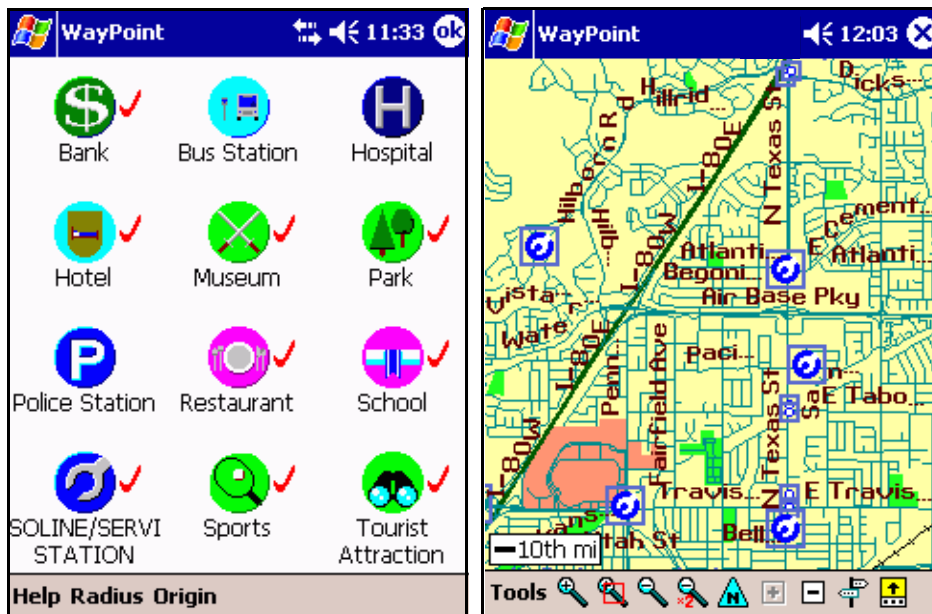
2. Select the radius you want to search or take the previous one you used. The check marks indicate that there are entries for that category within the radius chosen.

3. Tap the Gas/Service Station icon.

4. A screen showing all the gas stations in the radius you chose will be shown. You can tap any of them to find out what kind of station they are and their locations are clearly shown on the map. Don't forget to look at the small dots as well. These are stations that are too close together to show the big icon. You can zoom or pan until you find the one you like.

5. Once you have one in mind tap and hold on the description to bring up the menu.

6. Selecting **Route To** will generate a route to that location. Or, if you're already running a route, consider **Route Through** to add the gas stop to the existing route. This will route to the station and then back to the route you were already on.
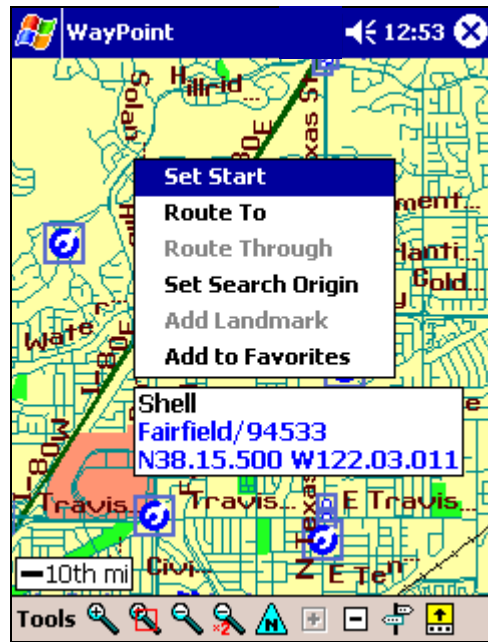
Using the SignPost
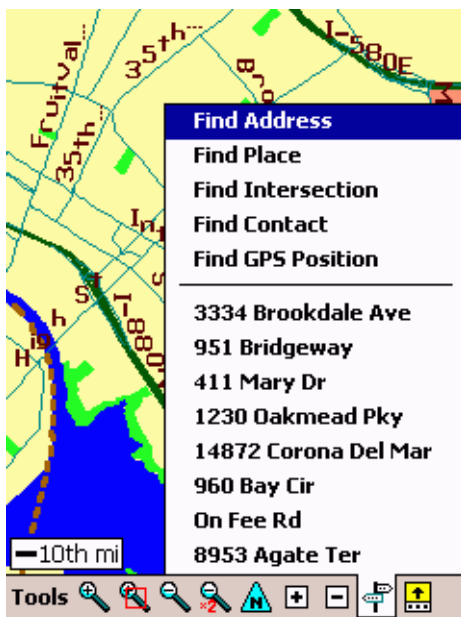
The SignPost quick find icon is near the right end on the command bar. Tapping this will bring up the quick find menu shown at the left. This menu contains some frequently used find commands and a list of your favorite locations.

1. Tap the sign post icon.

2. Select the entry you are interested in.

3. Once the location appears on the screen, use the tap and hold technique to bring up a menu.

4. Select **Route To** to kick off the router to route to that location.

Bluetooth Operation

Bluetooth GPS is a feature of the WayPoint 200 product. Bluetooth wireless technology consists of a CF hardware card and Bluetooth management software with a Bluetooth Driver. The intent of the Bluetooth module is to permit the use of the Bluetooth GPS receiver but it can also be used for many other tasks.

Bluetooth Hardware
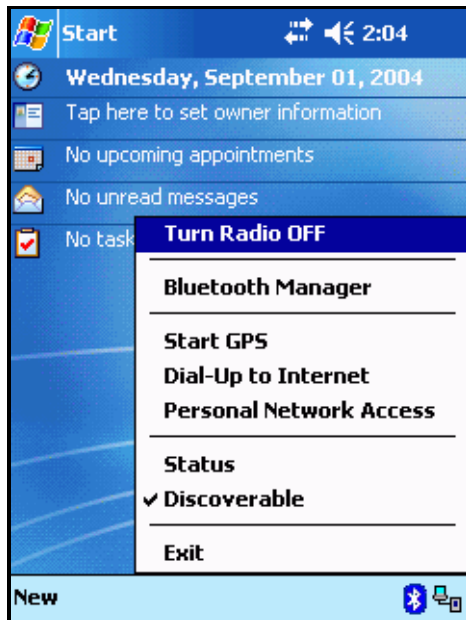
The Bluetooth hardware is a CompactFlash card that is inserted in the slot at the top of the unit. It may automatically turn on when it is inserted. It can be turned on or off from the Bluetooth menu. Use the Bluetooth 🔵 icon on the command bar at the bottom of the Today screen to manage the Bluetooth connections. Expect some loss of battery life when the Bluetooth module is in use.

There will be small x in the lower corner of the Bluetooth icon if the card is not present.

A lamp on the module blinks to remind you that it is in use and is working. When it is receiving data is may turn solid on. The Bluetooth antenna extends slightly above the PDA case and contains this lamp.

If the Bluetooth module does not turn on automatically use the Bluetooth menu to Turn the Radio on (or off).

The settings in the Menu can be used to reach Bluetooth connections if they have been previously configured. In the case of the GPS connection it can configure itself automatically (see "Enabling the Bluetooth Driver" on page 86.) This is also the place where the Bluetooth radio is turned on or off and where the unit can be changed from hidden to discoverable. Be sure that it is on before proceeding. To configure the devices and connections use the Bluetooth Manager.

For the serial port connection needed for GPS use many of these settings do not make any difference, but may be changed for increased security or to restrict what can be done with the connection. Once a GPS device is set up as the default for Bluetooth serial connections the Bluetooth software will automatically connect to that device when the mapping application requests it.

ⓘ
This is a class II Bluetooth radio with a maximum range of up to 32 feet (10 meters) and a data rate up to 721 Kbps. It supports up to 7 devices. It is compliant with the Bluetooth V1.1 standard. The typical power consumption is 40mA but can reach 90mA peak.

Automatic Operation

There is a special feature that provides automatic operation of the Bluetooth for GPS operation. The Bluetooth GPS receiver must be turned on for these features to work This capability includes:

- Automatic configuration and connection to a WayPoint Bluetooth GPS. Tap the Start GPS to automatically search and pair with the GPS device. Once the connection is made the WayPoint application will automatically be started.

- Automatic reconnection of the GPS if you power off the unit. This is specific to the default GPS device which will cause the Bluetooth to reconnect to this unit when powered on.

- It will also cause the GPS to be found and connected automatically if a Bluetooth GPS is requested from WayPoint or any other GPS enabled software.

Bluetooth Manager

The Bluetooth manager establishes the connections with supported devices. When you start the Bluetooth Manager you will see the ShortCuts Window. In the figure below left a serial port Bluetooth device (In this case a GPS) is shown. The first time you enter the Manager this screen will be empty. To make a connection to the GPS as shown perform the following steps.
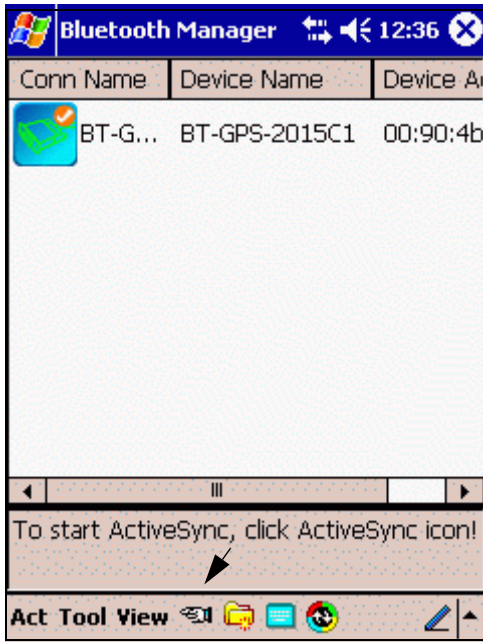
1. Tap the hand shown on the command bar to bring up the Devices Nearby window shown above on the right.

2. Generally this will kick off the search automatically. You can also tap the refresh icon to look for devices nearby. The screen shows that a GPS has been found.

3. Tap twice quickly on the icon to discover the services it provides.

4. Depending on the security settings it may ask you for a passkey. It is **2003** for this device. (Security level is controlled on **Tool > Configuration**)

5. The window shown to the right will appear.

6. Only the Serial Port service will appear for this a GPS device (on the left near the bottom as shown by the arrow). Tap it to connect and create a short cut.

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7. You are now back to the screen you started with. A connection has been made to the Bluetooth GPS unit.

8. If this is the first serial device it will also be set as the default device. If you have multiple serial devices you can choose the default one from a menu.

9. Tap the icon to leave the Manager or just press the WayPoint button to bring up the WayPoint application. It can use the Bluetooth GPS connection that was just created.

This is the minimum needed to set up the Bluetooth GPS but will only need to be done the first time. For more security you can set a bond between the devices by setting the security to "high security" on the **Tool > Configuration > Options** menu. A high security will require you to enter the security code. It is 2003 to make the connection. The devices will then be paired. It will remain paired unless you delete the pairing. Only one device at a time can use the serial connection. Once it is established, the GPS will be locked to your unit as if there was a wire running between them.

The WayPoint navigation tool will be able to access the Bluetooth GPS on COM 8. While the Bluetooth CF card does not use as much current as a direct connection of a GPS would, it still uses some power. It should be turned off when not needed.

Enabling the Bluetooth Driver

Normally the Bluetooth driver will always be running even if the Bluetooth hardware card is removed. If the Bluetooth icon is missing from the bottom of the Today screen it means the driver are not running. Use the **start menu** > **programs** and start the driver by tapping the Bluetooth icon named **BlueSoleil**. If the driver is already running tapping this icon will do nothing. A copy of this icon should be in the startup folder (\Windows\Startup) to automatically start the Bluetooth driver after a software reset.

Other Uses

While the main intent of the Bluetooth module is to support the Bluetooth GPS unit, it can also support other activities and tasks. For example it can work with the contact list to send a contact via Bluetooth to another device or it can use the contact entry to dial a Bluetooth phone. It supports:

Service	Definition
General Access (GAP)	
Service Discovery (SDAP)	Manages device discovery process
ActiveSync	Provide wireless ActiveSync capability.
Serial Port (SPP)	Used by GPS - General Serial Port support
Dial-Up network (DUN)	Used by a wireless modem. GPRS cell phones are supported.

Service	Definition
LAN Access (LAP)	Used by wireless access points to provide network connection
Personal Area Network (PAN)	Provides a local network of up to 7 devices
File Transfer (FTP)	Provides ability to transfer files between wireless devices
Object Push (OPP)	Sends business cards
Fax (FAX)	Used to support a wireless fax machine
headset	Used to support a wireless head set for cell phones
Audio Gateway	Similar to headset but no ring support
Cordless Phone Gateway	Used to support a cordless phone

Check the Official Bluetooth website http://www.bluetooth.org for more information on these features or read the vendor documentation on Bluetooth that is available on the CD-ROM as a pdf file.

The PAN service can support a local network of up to 7 units. If one of the units on this local network is a Internet Access Point the full Internet can be browsed directly from the WayPoint PDA. Thus a WayPoint unit could use the PAN network and a GPS serial connection to provide simultaneous access to the GPS device and an internet connection. This would permit Traffic Watch, for example, to be collecting live data while WayPoint is tracking your current location.

The DUN service can be used with GPRS phones to support internet connections as well. This would also permit live Traffic Watch or Weather Underground capability.

Screen Descriptions

The screens available for Bluetooth operation are generally available in the Bluetooth manager. The ACT menu on the command bar duplicates the screen access from the icons. In addition the status screen can be accessed from the today Bluetooth menu. The Radio on/off toggle and the Bluetooth Manager have already been described. The additional features are available on this menu include:

- 3 shorts cuts that permit direct access for previously setup features in the Manager. These are:

  o Start GPS - This starts the default GPS device. It is intended to start the WayPoint GPS for use in the WayPoint application.

  o Dial-up Internet - starts the default DUN connection

  o Personal Network Access - starts the default PAN connection.
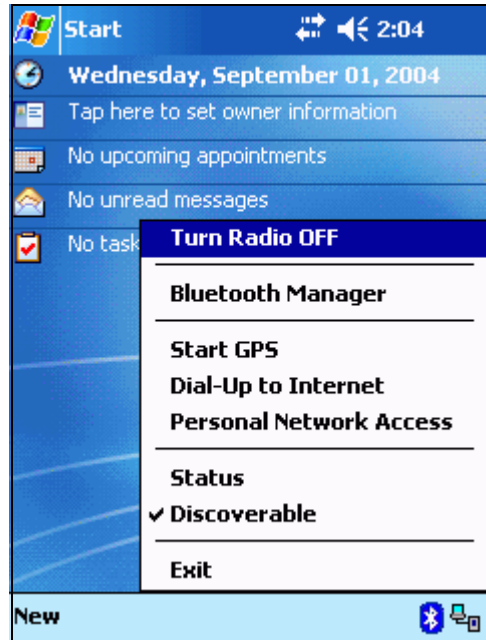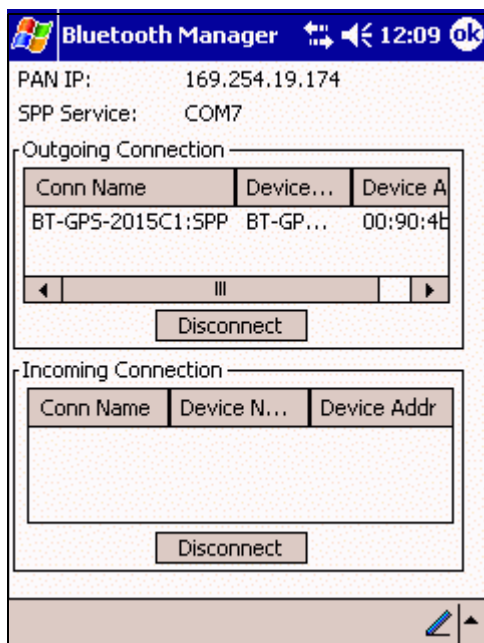
- The Status screen shows the active connections. It is shown on the left. A disconnect can be performed from this screen.

- Discoverable is a toggle that permits the unit to be found by other Bluetooth devices.

- Exit - quits the Bluetooth application.

The SPP service shown on the Status screen is the address for incoming Serial Connections. The Bluetooth GPS is an outgoing connection as shown in the figure. The SPP service COM port is generally one higher than the Incoming Port however the hardware may choose whatever it wishes. To know which COM post address the GPS is really connected to the Shortcut properties can be used to verify the address.

The Screens in the Bluetooth Manager are shown below:
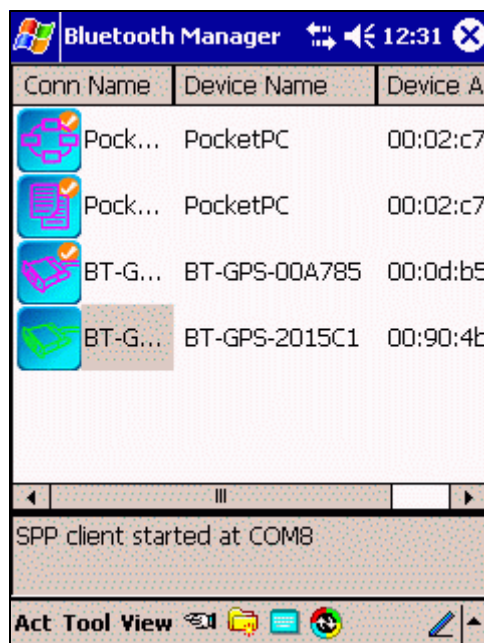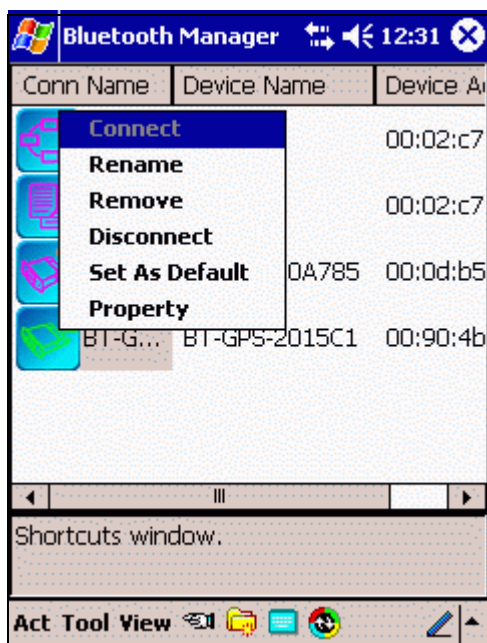
After tapping **Property** text in the right screen shows the SPP connection is on COM 8.

The **Options** screen is reached **Tool > Configuration** in the Bluetooth Manager. It is shown on the right.

- The Address is the internet address for a pan connection.

- The name is the one used to identify the the WayPoint PDA in Bluetooth connections.

- The security can be set to high security to require paired devices. If not checked then no pairing will be required.

- A fixed password for this unit can be assigned if desired. Otherwise you may be prompted for a Passkey.

- The tabs show the connection options settings for various Protocols supported by this unit including the business card transfer (OPP).

Bluetooth GPS Receiver

The Bluetooth GPS receiver is the prime use for the Bluetooth module in the WayPoint PDA. The unit runs 8 hours on its own internal battery is fully charged when the lamp goes out. A few tips include:

- Do not exceed 5 V input.

- If left unused, a fully charged battery will discharge itself over time.

- Do not cover the antenna area shown in the figure on the next page. It is used for GPS reception and for Bluetooth operation.

- If you decide to pair the GPS and the Bluetooth module the passkey is 2003.

- The Bluetooth lamp will flash at a one second rate when you are connected and much slower while awaiting a connection.

- If the car power is removed when the ignition key is turned off, the unit will revert to battery power. Be sure and turn it off if you intend to leave the car for a long period.

Internal Antenna

External Antenna

Battery Status

Power On/Off

GPS Status

External Power
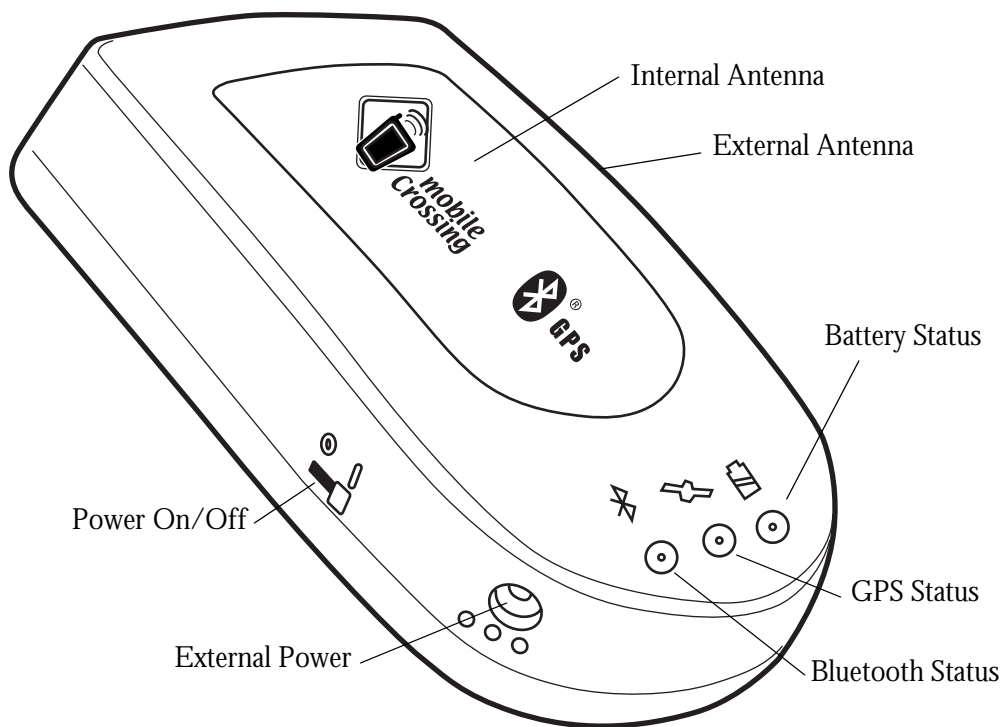
Bluetooth Status

Bluetooth Status LED (Blue)
Blinking - Bluetooth radio is on and ready to transmit.

GPS Status LED (Green)
Blinking - GPS position is fixed.
Steady light - GPS position is NOT fixed.

Battery Status LED (YELLOW/RED)
None - Running on battery power, and battery has adequate power supply.
Constant Red - Running on battery power, which is critically low. Recharge as soon as possible.
Constant Yellow - Connected to power charger, and battery is charging.

Advanced Topics

This chapter is intended for reference on a wide variety of topics. It does not flow like the previous chapters did. Each section is standalone. The topics include:

GPS hardware topics

How a GPS works

The GPS receiver that you can hold in the palm of your hand is a highly complex and powerful device. You don't need to understand it fully in order to use it but some understanding can be helpful in getting the most from a GPS.

First of all it is a radio wave receiver similar in some ways to a standard FM radio. It only receives signals but unlike a standard radio these signals come from satellites moving rapidly overhead. The receiver uses these satellite signals to compute a position on the earth. You need not worry that the satellites know where you are. They do not, only the receiver itself figures this out. How it does this is the subject of the next few paragraphs.

Unlike the standard FM radio which only receives one station at a time the GPS receives several signals simultaneously. As a matter of fact it needs at least three satellite signals to compute its position and to compute a full solution including altitude it needs four. Once it has computed the position it is said to have a *fix* or *lock* on the satellites and will then dynamically update the position once a second as you travel.

Unlike the FM radio, a GPS receiver needs to have a fairly clear view of the sky in order to receive these signals. Signal reception is effectively blocked by water (however, not rain because the space between the rain drops), the human body, the metal roof on your car, a building, and many other things. The good news is that there are usually a lot more that 3 satellites overhead (sometimes as many as twelve) so if some are blocked others may be available. And just like the fact that you can see through some objects such as a window there are some objects that do not block signals for the GPS.

COMPUTING A FIX

The GPS uses mathematical formulas based on the distance to the satellites and the position of the satellites to compute your location very much like a ship captain might take sightings on land objects or stars to compute the ship's position at sea.

Because these computations are based on the current positions of the satellites the unit must download the position data from the satellites themselves. This takes about 30 seconds to receive but if it misses some of the data it could take longer.

After the download is complete the computation can start. The computed position accuracy depends on what satellites the GPS can view, where they happen to be, and the ability of the receiver itself, but generally a consumer GPS receiver with a good sky view can compute a position that is accurate to about 30 feet. This is usually good enough to find your house or even your car but probably not good enough to settle a property line dispute.

Most GPS receivers or the programs that work with them provide a method for you to determine how good the current reception is. This is similar to the idea of determining the strength of the signal to a cell phone, but you need to know the strength of the reception of several satellite signals instead of just one.

The WayPoint display shows you where they are in the sky relative to your current position and how strong the signal reception is. If you notice that it is having trouble getting enough signals you might be able to help by moving a few feet or turning around so that the signal is not blocked. The top of the display is north.

By the way, once a GPS receiver has achieved its fix it is much better at maintaining it under adverse conditions than it was in getting the fix in the first place. It will dynamically add and drop satellites used in the solution as needed while you travel.

Most of the time you will never need to worry about any of this. You will just turn the unit on and it will find the satellites and compute the position solution in about a minute or even less and everything will be ok. You can just begin using it. However, if there are problems it can be helpful to know what can be done to resolve them.

External Antennas

Both of the WayPoint GPS models support external antennas as an optional accessory. You are not likely to need one unless you have one of those cars with the special coating on the windshield to block the sun's heat. Unfortunately, this coating also blocks GPS signals. If you need a remote antenna, be careful with the cable. It plugs into the GPS with a click and you must hold onto the antenna connector by the plug to pull it out. Pulling it out with the cable will eventually break the cable.

There are situations where an external antenna can help even though it is not needed.

- For versatile installation options such as mounting the PDA or GPS receiver in a location that is not optimum for GPS reception.

- For security the Bluetooth receiver could be placed in the glove box with the antenna located in an external location.

- Using WAAS – For the ultimate in accuracy some folks want to use WAAS which is an augmentation system that can improve location accuracy. The signal for WAAS comes from a single satellite that is located in the southern sky. Having an external roof mounted antenna will improve the chances of receiving this signal.

- Traveling in the mountains or deep woods. The addition of an external antenna on the roof will permit the reception of one to two more satellites that would normally be

blocked by the metal roof. In poor reception conditions this can make a difference in whether there are enough signals to produce a fix or not.

PDA Hardware Topics

Resetting Your WayPoint PDA

You will need to reset your WayPoint PDA after restoring data from files backed up on your PC, or in the event of the operating system *freezing up*. Resetting provides a similar function to rebooting your PC, restarting the operating system. All saved files and settings are preserved, although any unsaved files will be lost.

To reset your WayPoint PDA, remove it from the USB cradle and make sure that the CF Expansion slot does not contain any I/O devices that might start up during the reset. Locate the software reset button on the back of the device. You may wish to unscrew the top end of the stylus and use it to push the button.
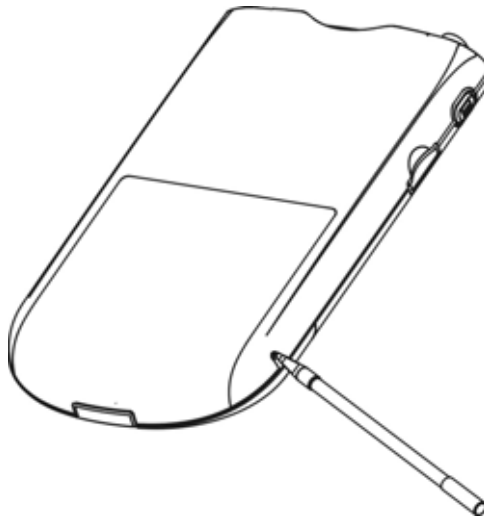
Push the Software Reset Button with the Stylus or use the top end of the stylus by unscrewing it.

Restoring the Factory Defaults

If your WayPoint PDA fails to respond after being reset, you might have to restore the factory defaults. This is the software state that the device was in when you first started using it; the operating system and preloaded software stored in Flash ROM are preserved, but the programs, files and settings stored in RAM are erased. You latest backup can be used to restore the RAM contents.

To return your WayPoint PDA to its factory state, unscrew the top of the stylus and use it to slide the hardware master power switch from on to off to turn the device off, and then back to the **on** position again.

Remember that the main battery must be removed to see the switch. Alternatively, you can simply allow the batteries to run down completely. Once you have restored the factory defaults, you will need to re-install your programs, reload backed up files and adjust the settings to suit your personal preferences.
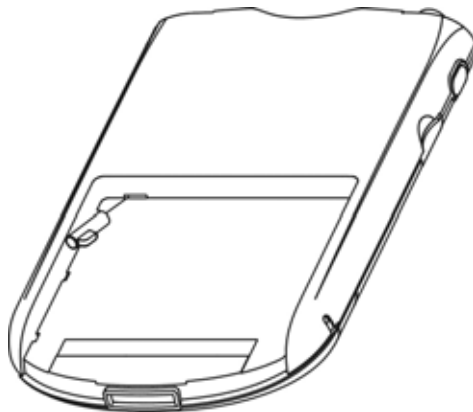
Master Power Switch

Slide the Master Power Switch from on to off and then back to on again. The figure shows the back of the stylus being used to change the switch.

Adding Hardware to your WayPoint PDA

The Mobile Crossing WayPoint PDA is a very versatile unit. It is possible to add external devices to the unit to supplement the hardware you received. Extra devices can be plugged into the serial connector on the bottom of the unit, hooked via the IrDA (Infrared) port, or plugged into the CompactFlash slot. The following I/O slots are available:

- COM 1: Serial Port. This is available as separate pins on the USB / Power connector on the bottom of the unit. Baud rates up to 115 Kbps can be supported. The pin-out of the connector is the same as an iPAQ. This can support modems, cell phones, network hardware, and even other GPS devices.

- COM 2: reserved

- COM 3: CF Card slot. This slot can support I/O devices and memory devices when the WayPoint GPS solution is not plugged into the slot. Power is supplied to the device plugged into this slot. Do not use devices that require more than 500 mA. There are a

wide range of I/O devices that will work in this slot but Mobile Crossing cannot guarantee that any particular device will work.

- COM 4: IrDA. This is the port used for beaming files between units.

- COM 5: USB. This is a USB slave port. It can only be used to communicate with master USB devices such as a PC. ActiveSync uses this port.

- COM 6: IrCom. The infrared serial port with similar capabilities as the serial port.

- COM 7, 8, 9 are potentially used by Bluetooth plugged into the CF card slot.

The WayPoint 200 includes a Bluetooth card in the CF slot. This card can support up to 7 devices simultaneously in a pico net. The list of devices that have Bluetooth support is growing daily.

The CF card slot and the SD card slot can support memory devices from a variety of manufactures. Note there is a wide variation of performance and current requirements on these devices. Generally the faster devices will have more impact on the battery life. The SD slot does not support I/O devices but does support MMC cards. MMC cards are typically about 3X slower than slow SD memory cards on the WayPoint hardware.

Advanced WayPoint Software features

Geocaching

Geocaching is a hobby where some people hide a cache of stuff (none of it particularly valuable) and then identify the location with GPS coordinates. Other folks set off to find these hidden treasures and leave their name in a log book. It is actually more fun that it sounds and it can be done with the unit you have. Here is how:

1. With the GPS off use the **Tools** > **Find** > **Latitude Longitude**

2. Enter the values for the Geocache site and add it as a landmark.

3. Route to the Landmark you created to drive as close as your car can get.

4. Use the air navigation panel if you need the map or the GPS status screen to walk to the geocache destination. Good Luck!

Choosing Maps to Display

While all of the maps are selected by default there may be times when you would prefer to not load them all. A few reasons include improved load times, improved route times, less system resources needed, and improved search times. This section will tell you how to work with the minimum amount of maps

Selecting and loading just the maps you need can be done from the map page by selecting **Tools** > **Choose Map**. A list of maps will appear. Turn off all of the maps and then pick the ones you want manually. The easiest choice is to select the Major Roads Highway map and then add the others graphically unless you are already familiar with the county names you want to select. The maps are named with the county name followed by the two letter state designation follow by the letters NGC. Tap ok to return to the map page.

Use the magnifying glass icons at the bottom of the screen to zoom in (+) or zoom out (-) until you see a map you recognize which will be the major road map. Tap the square icon with the – (minus) inside until all you can see is roads and little sunbursts.

You can hold the stylus against the map and drag the map around on the screen. Tapping any of the sunbursts will display the county name for that area. Tap and hold the stylus on the displayed name to bring up a menu that permits you to load that map. Load whatever maps you wish.

Note that maps you do not load will not be selected automatically by the program, thus if you drive into an area where you did not load a map there will be no map displayed. This is another good reason to always load the Major Roads map.

To load the minimum required for a route select the detailed county map at the start and at the destination. Try and use the road map for any of the routing that needs to be done between these two points. If your county is not connected to the road map then you may have to load an adjacent detailed map to make the connection. The route calculation will generally be faster with only these maps loaded. After the route is calculated you can add detailed maps graphically along the route if you wish to show the gas stations and other POI's you might be interested in. Loading the detailed maps may improve the ETA calculation slightly.

Using the Log file

The WayPoint software includes the ability to create a log file that will record a trip. There are many things that can be done with the log file.

- The log file can be saved in a file.

- The logging (GPS trail) can be displayed live on the screen so that you can see a visual record of where you drove while you are driving. This can allow you to retrace your steps visually if you need to.

- The log file can be displayed on the map later to have a visual indication of the entire journey.

- Each of the points on the log can be tapped to see the actual speed and other data about that point, or you can view the details in a list.

- You can display a summary of the trip.

- The log file can be played back from any point to simulate the travel.

- If roadlock is set the log file entries will try and lock to the road.

Logging is under control of the GPS setup but the viewing of the GPS trail itself is controlled by the Map Settings. To playback a log file you must select one of the summary files first or a point in the detail list. Summary files and details lists are created for each trip you take. You can switch between them with the View menu.

Extra Software

Mobile Crossing has included some extra software on the documentation CD-ROM that will prove useful to our customers. These programs are described below. Thousands of other programs are available for Pocket PC devices. Those specifically targeted to Pocket PC 2002 or later will generally work ok on the WayPoint PDA. These should be marked for an ARM or X-Scale processor. Mobile Crossing cannot guarantee whether any given software product will work, nor are they responsible if a particular software product interferes with proper operation of the unit.

Installing Programs

There are three methods of installing programs on your WayPoint PDA.

1. A special setup program on a pc can be used. This is the usual way to install software and requires a pc running ActiveSync. The program sets up the data and pushes it to the PDA. It is not required that you have an account on the pc. Using a Guest account will do, so if you don't have a pc perhaps you can borrow one for a few minutes.

2. The second method is to just copy the Pocket PC executable program itself to the PDA. This can be down in any of the methods used to copy a cab file. The program can be stored anywhere and executed by using file explorer to find the file and tap on it.

   This will only work for fairly simple programs that do not have extra files that are needed for execution. If the file is moved to the windows\Start Menu\Programs directory it will show up on the start menu. It is also possible to keep the program in another location and use file explorer to create a short cut from the Programs directory to the program itself.

3. The third method is to use a cabinet file. These files are specially prepared files for the pocket pc. They have a .cab extension. The file can be downloaded to the unit directly from the web, moved to the unit from a pc, available on a memory card that is plugged into the unit, or even beamed from another unit.

   File explorer can be used to install a cab file just by clicking on it. The cab file will always install the program to a predefined location and the cab file itself will be removed at the end of the installation.

There is a third party program available, called cabinstall, which permits more control over this process including keeping the cab file and installing to a memory card or location of your choice. The cab install program does not need to be installed. You just copy it to the WayPoint unit and place it anywhere you wish. Use file explorer to locate the program and tap it to start it.
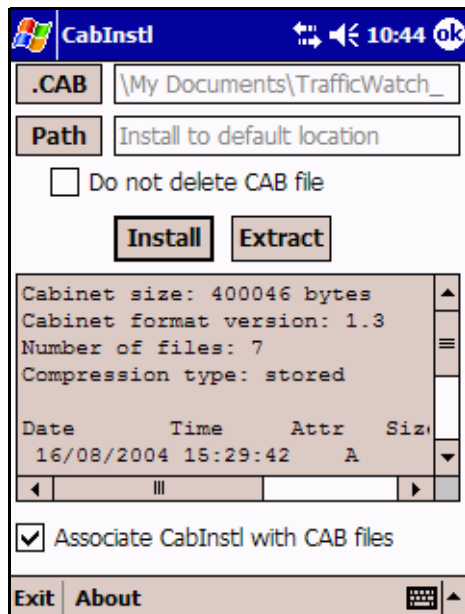
If you check the "Associate CabInst" setting then you can just tap a cab file and the program will automatically be started. Otherwise you can tap the **.CAB** button to bring of a file browser to pick the cab file you wish.

To traverse the file system double tap on the directory names. You can decide to keep or delete the cab file after installation and you can decide whether to install in the default location or one of your own choosing.

Some files will automatically go in a special place even if you choose a different one. This is normal.

This program was written by a Russian programmer and he has offered it for free. His web site is http://www.geocities.com/s_k_s_k_s_kru/.

Wisbar
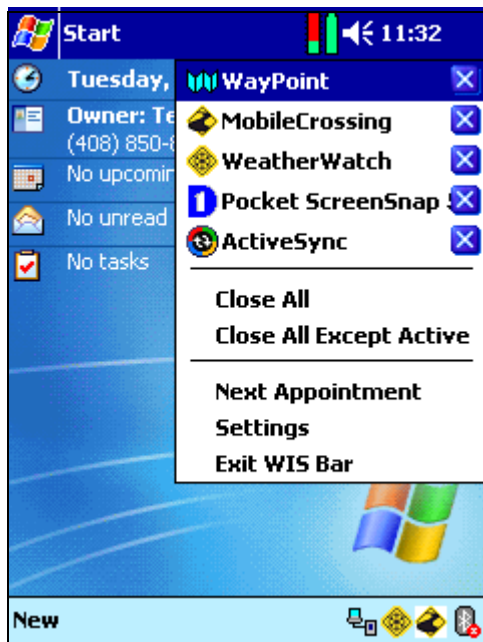
Wisbar from Pelmar is a tool that permits a user to customize the look of the Title bar on the WayPoint PDA. It also permits the user to manage the running tasks easily. Wisbar can switch among tasks and can kill ones you are no longer using. Wisbar also helps with monitoring the battery level by placing an icon on the Title bar. The battery icon can be tapped to look at the actual gauge instead of chasing it down in the systems menu.

Wisbar is very customizable. One view is shown at the left. One of the major reasons to use Wisbar is the additional menu. This menu can be reached by tapping on the clock time on the Title bar.

The menu provides several program management services such as:

• showing all running programs

• allows you to tap on any of them to switch between the applications.

• The X on the right can be used to actually stop the program thus freeing up the memory resources used by the program.

The settings entry shown on the menu permits you to customize how Wisbar works. Also shown in the image are the memory and battery usage icons on the title bar. The memory program space is about ¾ full while the battery is shown at full charge. Tapping this will bring up the battery gauge.

Wisbar must be started manually the first time but if it is running it will continue to run even if the PDA has been restarted with a software reset.

Wisbar is included with the kind permission of macpel at http://www.macpel.com/html/pocket_pc.htm

Advanced Topics
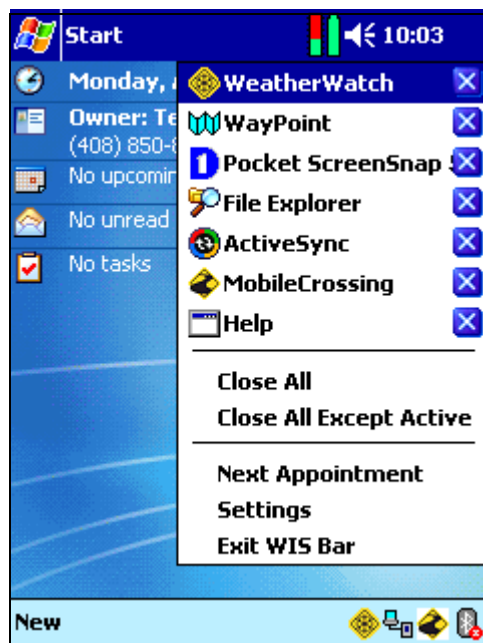
GPSInfo

GPSInfo from Globalsat Technology Corporation is included to provide a troubleshooting tool for any GPS problems that might be encountered. It can be used to

- reset the GPS device

- provides analysis data about a fix.

- enable WAAS on the GPS devices included in WayPoint.

It does not report whether WAAS is in use. WAAS is an augmentation system that can provide increased accuracy in some situations. It is generally not needed for road navigation, particular when road lock is in use. WAAS takes one of the GPS satellite positions from the receiver so you cannot use 12 satellites when WAAS is in use. The implementation on WayPoint GPS devices supports corrections for signal errors but does not support WAAS ranging where the WAAS satellite could be used to substitute for the 12th satellite. EGNOS is the European version of WAAS.

SETUP
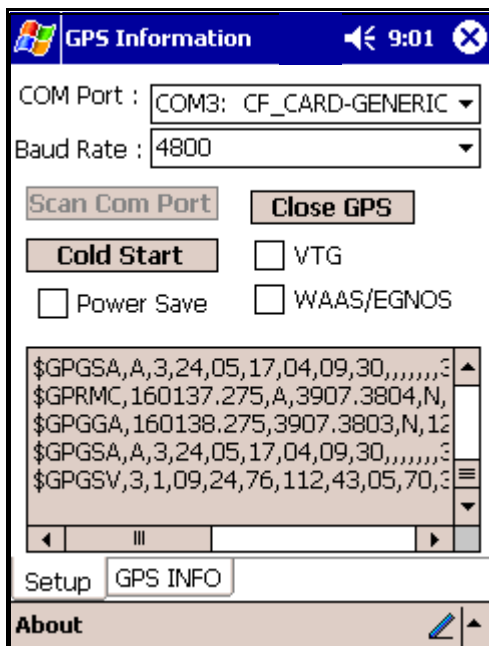
The opening screen for GPS Info is the place where the connection to the GPS unit is performed. Only one program can be attached to a GPS unit at any one time. If a connection cannot be established check and ensure that the WayPoint software is not running or has closed access to the GPS. The setup page permits some control over the GPS itself. The commands include:

- The Cold Start button will reset the GPS and require a cold start. This could take some time so only do this when you have a clear sky view and are willing to wait until a GPS fix is obtained.

- VTG checked with add this message to the NMEA strings of data. You should not do this unless a program specifically needs it.

- Power Save and save significant amounts of battery power but at a cost in performance. Use this at your own discretion, but it is not recommend under difficult reception conditions.

The WAAS switch can be used to toggle the differential correction capability on or off. Using WAAS ties up one of the receiver channels and is not needed for use with road navigation software.

The bottom of the screen shows NMEA messages as they appear. Its primary purpose is to demonstrate that the GPS is actively send data and the PDA can receive it.

GPS INFO

Tapping the GPS Info tab brings up the information display. This screen shows a map of the current satellite positions with the current reception signal strength for each satellite shown below the map. The text data about the fix surrounds the map. It is primarily about the GPS PVT solution.

- All GPS receivers compute PVT, Position, Velocity, and Time as the full GPS solution.

- At the top is the GPS computed UTC date, followed with the UTC time.

- GPS solutions are usually computed with respect to Universal Time Coordinated (UTC) which used to be called GMT (Greenwich Mean Time).

- The time is computed at longitude 0 which passes through England. California is 8 hours later than UTC (7 hours during DST).
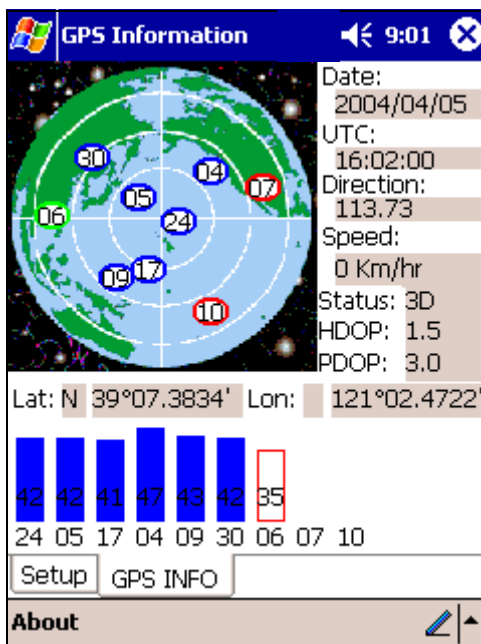
The other information shown includes:

- the Velocity (Speed and Direction)

- the Position (Latitude and Longitude) except that altitude is missing.

The rest of the text is concerned with the quality of the fix itself. The Status reports that the GPS has a 3D solution which means it is computing a solution in all three axes which requires at least 4 satellites.

In addition it is showing a HDOP, Horizontal Dilution of Position and a PDOP (Point DOP). Dilution of Position is a unitless number that represents how good the solution is based on the current satellite positions. For horizontal DOP any number less than 2.0 is very good.

PDOP provides a number that includes both horizontal and vertical accuracy and 3.0 as shown above is a good number for this. This

computation is based strictly on the arrangement of satellites as shown on the screen. Numbers above 6.0 would indicate a poor arrangement that might not lead to very accurate results.

The bar chart at the bottom of the screen shows the S/N ratio of each satellite (signal strength) and the blue bar indicates the satellites that are contributing to the current solution. The numbers at the bottom of the bar are the same numbers as the one on the map so that the two charts can be tied together. The receiver is getting a signal from satellite 6 but does not have the data yet to use it as part of the solution.

By the way, the map of the earth shown on the upper chart is bogus since the satellite view is looking up, not down with the center of the circle representing the current location and North at the top. The map itself is only a graphic and provides only misinformation but looks nice.

TrafficWatch and Weather Underground

There is a copy of TrafficWatch and Weather from Weather Underground already built in to your WayPoint. These are trial executables that can be used to explore this subscription service. You will need to subscribe to continue to use these applications. WayPoint 200 owners have a free year's subscription to this service.

The data is provided via an internet connection from a Mobile Crossing server. If you are hooked to a computer via ActiveSync you can take advantage of the computer's internet link to provide this data. It is also possible to use a direct internet connection via a LAN card or even a cell phone providing real time data while traveling. After the data has been collected it can be displayed even if you are off line.

- TrafficWatch provides live traffic data for selected cities. This includes freeway speed information and data about potential bottle necks.

- The Weather Underground program provides real time weather data.

TrafficWatch　　　**Weather**

WayPoint GPS　　　**Programs**

The programs can be executed from the Start menu or via the WayPoint Navigation program. If you tap and hold the WayPoint 🔷 button for a second or so it will bring up the QuickLaunch program. QuickLaunch can also be started from the Start menu.

Tap the appropriate icon to launch the program.

There is room for more programs that can be launched from this screen. The WayPoint icon returns to WayPoint or you can just press the WayPoint button.

TrafficWatch and Weather Underground have their own manuals. They are available from the Mobile Crossing web site.

It is possible to customize the applications that are launched from this Quick Launch by editing the xml file that controls this operation. The file would need to be moved to a PC to perform this edit. For more information on customization please see "QuickLaunch" on page 128.

More Information

There is more information available on the CD-ROM that accompanies this product. The extra documentation is in PDF form and requires a copy of Acrobat reader to read it. A copy of Acrobat reader is freely available for many platforms including a Windows PC, and the WayPoint PDA using the Pocket PC reader.

There are copies of all the supplied manuals and extra documentation on using the Pocket PC operating system, the Bluetooth operation, and the GPS devices included with WayPoint. Other documents may be included as well.

These documents can be found by using the automatic Setup command or browse in the OEM directory on the CD-ROM. A readme.htm file in the OEM directory permits your html browser to access this data if you are not on a PC.

Advanced Topics

Troubleshooting

Should you have trouble with your unit the following tables may be able to help.

PDA Problems

Problem	Possible Cause/Solution
My unit won't turn on.	1. Make sure the master power switch under the battery is on. 2. Make sure the battery is in place and the cover is close tight. 3. Make sure the battery is right side up. the connectors in the upper right corner of the battery must contact the connections on the PDA. 4. Make sure the battery is charged. Plug the unit into AC.
My clock reset to 12:00, 1st January 2004	This is caused by a complete power failure / hardware reset.The GPS will automatically set the correct time.
I can't tap the right place on the screen with my stylus?	You probably need to recalibrate your screen. Use **Settings** > **System** > **Screen**.
The screen is too bright / dim.	The screen backlight brightness is adjustable. **Settings** > **System** > **Backlight**
The power light is flashing from red to green to off.	This indicates a really low battery condition. Recharge the unit for several hours. If this persists you may need a new battery.
Poor quality sound when playing music through the internal speaker.	The playback is distorted when the volume is set too high. The internal speaker is not designed for high fidelity, use headphones.

Problem	Possible Cause/Solution
The Keyboard is too hard to use.	1. Try selecting the larger keyboard. Tap **Settings** > **Input**. 2. Check third party software or hardware solutions. 3. Learn a different input technique. There are 4 to choose from.
My recording quality is not very good.	The default sampling frequency has been set at 22KHz. This bandwidth can be altered to improve quality, but doing this will use more memory. Tap **Settings** > **Input** > **Options**. Select a higher frequency from the voice recording drop-down menu
My better quality recording doesn't work in the calendar or tasks.	To conserve memory, the calendar and tasks applications can only support a sampling frequency of up to 8KHz
My unit turns on whenever I insert or remove a CF slot device.	This is a requirement for Pocket PC PDA devices and is normal.
Active Sync is invoked whenever I plug a serial cable into the unit.	Make sure that you disable the "synchronization when cradled" option in the ActiveSync Tools menu.
I can't transfer data to or receive data from a Palm device.	Peacemaker is a cross platform, infrared transfer utility for handheld devices. More information can be found at http://www.conduits.com/ce/peacemaker
My WayPoint unit will not turn on when disconnected from power.	The battery is probably not charged enough. Try charging longer.
My battery runs down too fast.	1. Running CPU intensive tasks. 2. Backlight set too high. 3. Device plugged into CF slot taking power. 4. Older battery may be getting weak and needs to be replaced.
My Unit runs too slow.	1. Too many applications are running – stop a few of them. **Settings** > **System** > **Memory** 2. Low on memory – Either too many applications running or too many are installed in RAM. **Settings** > **System** > **Remove Programs.**
New Driver just installed is not recognized.	Try a software reset.

Troubleshooting

Problem	Possible Cause/Solution
My Windows program won't work on WayPoint	While a Pocket PC looks like windows it requires special Pocket PC programs. Windows programs will not work.

PC Connection Problems

Problem	Possible Cause/Solution
I can't connect to a LAN network	1. Your Ethernet/LAN card is incompatible with your WayPoint PDA. 2. The correct drivers for your Ethernet/LAN card are not installed. 3. You are trying to connect to an incompatible server. It must be a DHCP server. 4. The data in the configuration is incorrect. Check settings and login data. 5. The server is busy. Try again later.
My WayPoint is not recognized by ActiveSync.	WayPoint is a new hardware unit and your driver may not include support for it. Be sure and install the driver from the CDROM that came with your unit.
I can't ActiveSync via IR.	Make sure there is less than 30cm between devices and that the angle is no more than 30°.

Bluetooth Problems

Problem	Possible Cause/Solution
I can't connect to a Bluetooth Device.	1. The Bluetooth unit is not turned on. Check the Bluetooth icon at the bottom of the Today screen and make sure the unit is on. The lamp on the Bluetooth module should be blinking. 2. The range is about 32 feet under the best conditions and less if there are obstructions. Move the devices closer together.
The Bluetooth icon is missing from the Today screen.	Restart the Bluetooth driver by tapping the BlueSoleil icon in the Programs folder.

Problem	Possible Cause/Solution
Bluetooth device initialization fails.	This usually means the Bluetooth hardware is not plugged in or has malfunctioned. Try removing and reinserting the module. If you are unable to start the device check with Mobile Crossing.
New Modem message appears when the module is plugged in.	This is a normal Microsoft message and can be dismissed.

Vehicle Mount and power

Problem	Possible Cause/Solution
There is no power to the mount	1. Make sure that there is power on the outlet. Many cars remove power when the ignition is turned off. 2. Check the fuse. It is in the tip of the power connector.
No sound from the speaker.	1. Try twisting the connector at either end of the cable to ensure that it is making good contact. 2. Turn up the volume on the side of the vehicle mount. 3. Remove the cable to ensure that the audio is being produced by the PDA itself.
Sound is distorted.	Reduce the volume in the PDA and turn it up on the vehicle mount to compensate.
Suction cup falls off the window.	Moisten the cup before sticking it on the window. Check it frequently. It cannot be trusted to stick permanently.

WayPoint navigation

Problem	Possible Cause / Solution
Can't route to a location in my database	Likely the local detailed map is not loaded.
Searches take too long	The first time a search is required the full database must be loaded. If it is still too long after the first time then try removing unneeded maps.
GPS loses lock too much.	Try a different mounting location. Add an external antenna. On the CF card tilt the unit a little more. Even a few degrees of tilt will improve the GPS reception.

Problem	Possible Cause / Solution
GPS takes too long to get a lock.	1. Let it get a lock before moving. Drive out from under trees or other obstructions that may be blocking the sky view and then stop. 2. If you have traveled a couple hundred miles since the last use then it may need initialization. Do step one and expect it to take 10 minutes or more to initialize.
Program can't find the GPS	Make sure the COM port is set to 3 for a CF GPS and 8 or 9 for a Bluetooth GPS. Baud rate must be set to 4800.
The program can't find my maps on an external card.	Under **Tools** > **Choose Map** select ALL FOLDERS.
Pressing the right button does not launch WayPoint.	Select the WayPoint application on **Settings** > **Button** for Button #5.
GPS shows all satellites in the center in one row. Most or all show 0	1. The GPS unit was left on while inside and you didn't have a fix. 2. You have moved 200 miles since the last time you used the GPS. The solution to both of these problems is to take the unit outdoors with a good sky view and wait until it gets a lock. See "Using the Cursor Keys" on page 49

Tips and Techniques

Here are a few tricks to make the WayPoint navigation software perform better.

- Turn on the City name display in map setup in the Pop-up Information box of the setup screen. This will let you tap anywhere on the screen and find out what city you are in. It can be frustrating to be able to see the roads and not know what city you're in, yet displaying the city name all of the time can cause clutter on the screen.

- The GPS is more accurate than the maps in many areas. If the GPS seems to be jumping to the wrong road too much try turning off Lock to Road. It may be easier for you to determine the correct road visually that for the computer to do it.

- If you plan on using the same route again be sure and save it. This will save time since you won't have to enter the locations again. A route can be reversed and then saved to find your way back easily. Do this before you even start to use it.

- Consider using the Route Through feature to control the router and get exactly the route you want. It is also very useful for multiple stops if they are all on the way.

- If your trip spans a time zone use the Visiting choice on the clock settings to change the time zone used by the unit.

- For local routes use the most exhaustive routing option but for long routes you may want to reduce this value to improve routing time. Reducing the number of loaded maps will also reduce the routing time.

- If you are using your WayPoint primarily as a GPS you can defeat the automatic Today screen switch from the **Settings > Today** menu. This will leave the navigation program on the screen even if you turn the unit off for more than 4 hours.

A

Appendix A - Technical Specifications

This chapter lists the specifications for the hardware included with WayPoint.

WayPoint PDA Specifications

Operating system	Microsoft Pocket PC 2003 Premium Edition
CPU	Intel XScale PXA 260 400MHz
LCD Display	3.5" Transflective TFT Module with Touch Panel Using NVIDIA MQ1188 Video Controller Resolution: 320X240 (64K Color)
System Memory	SDRAM: 64 MBytes On Board (41 Meg free after system buffers are allocated for increased performance) Rom: 32 MBytes for OS Flash Memory: 128 MBytes On Board (primarily for map storage)
Audio	Built-in Speaker & Microphone AC97 Codec 3.5 mm stereo headphone jack
Wireless	IrDA 115 Kbps Bluetooth Module Option (Uses CF slot)
Extension Interfaces	1.　Compact Flash X1 (Type II) 2.　Secure Digital / MMC X1 3.　Client USB X1 via shared 22 pin connector 4.　RS232 X1 (115 Kbps) via 22 pin connector 5.　DC IN +5V / 2A via 22 pin connector

Function Keys	1. Power Button 2. Master Power Switch 3. Thumb Wheel (3 Way) 4. Software Reset Button 5. Recording Switch 6. Application Buttons x4 7. 4 Way Cursor Key Pad 8. Battery remove & lock Switch
Battery	Back up Battery: 20 mA/1.2V Ni-MH Main Battery: 1300 mAH/3.7 V Lithium Ion Replaceable Smart Battery Pack
Power Adapter	Input: 90~260 VAC, 50~60 Hz Output: (Voltage: 5 VDC; Current: 3 A)
LED	Green / Red LED for charged indicator RED LED for O/S Alarm and Turn Assist
Dimensions	135 (L) mm x 79 (W) x 16 (H) 5.3" (L) x 3.1" (W) x 0.63" (H)

Note: The 22 pin USB / Serial Port / Power connector used on the WayPoint 100 and WayPoint 200 is the same as the connector that is used on HP iPAQ models 3800 / 3900 / 5100 / 5400 / 5500 / 2200 series. The pin-out is the same thus cables made for these units will usually work with the WayPoint models. Different electrical characteristics may prevent some functions from working the same.

Operating Conditions

Temperature and Relative Humidity

Operation	0 - 40ºC, 10 - 90% RH
Non-operation	-10 - 50ºC, 10 - 90% RH
Storage	-25 - 65ºC, 10 - 90% RH

Com port usage

Com1	Serial / Modem interface
Com2	Reserved
Com3	Used for serial / Modem interface in the CF slot.
Com4	IrDA
Com5	USB
Com6	IrCom
Com7	BT serial 1
Com8	BT serial 2
Com9	BT serial 3
Com0	CF network card

GPS Technical Specifications

The specifications are for all WayPoint GPS units except as noted. (CF for CompactFlash GPS, VM for vehicle mount GPS, and BT for Bluetooth GPS)

Accuracy	15 meters 2D RMS 95% of the time < 5 meters 2D RMS 95% of the time when WAAS is being received.
Datum	WGS 84
Hot Start	8 sec. Average
Warm Start	38 sec. Average
Cold Start	48 sec. Average **CF** and **VM**; 80 sec. **BT**
Reacquisition	100 ms. Average
GPS output data	GGA, GSA, GSV, RMC, VTG, GLL
Transfer Rate	4800,n, 8,1; any Baud rate will work for **BT**
Update Rate	1 Hz
Operating Temperature	-10° - 70° C **CF**; -20° - 60° C **BT** -10° - 60° C **VM**
Storage Temperature	-40° - 85° C, -20° - 80° C **VM**
Power	90mA **CF**, 8 hours **BT** per charge.
External Antenna	MMCX connector **CF** and **BT**

Vehicle mount

These specifications apply to either vehicle mount.

Power Source	12 V to 24 V DC
Operating Temperature	-10° - 60° C
Storage Temperature	-20° - 80° C
Charging Temperature	0° - 45° C
Output Voltage	5V nominal, range 4.75 - 5.25 V
Power LED	illuminates whenever power is received by the mount.

B

Appendix B - Regulatory Notices

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is advised to take one or more of the following measures:

- Reorient or relocate the antenna of the unit receiving the interference.

- Increase the distance between the equipment and the receiver.

- Connect the equipment into an outlet on a circuit different from that to which to receiver is connected.

- Consult your dealer or an experienced radio/TV technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by MOBILE CROSSING. Making modifications may void the reference authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

European Union Notice

Products bearing the CE marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE directive (1995/5/EC). Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN55022 (CISPR 22) - Electromagnetic Interference

- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) - Electromagnetic Immunity

- EN61000-3-3 (IE61000-3-3) - Power Line Flicker

- EN 60950 (IEC60950) - Product Safety

Safety Instructions

This product has been tested for conformance to international safety regulations. Like any electrical device, however, it should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the product, it is important that you follow these safety instructions.

1. Do not attempt to service the product yourself. Refer servicing to qualified personnel.

2. Unplug the product from the wall outlet before cleaning. Use a damp cloth. Do not use liquid or aerosol cleaners.

3. Do not use the product near water. Never spill liquid of any kind on the product.

4. Do not place the product on an unstable surface. The screen is glass and can be broken.

5. Do not expose the product to a heat source or leave it in direct sunlight for a prolonged period of time.

6. Do not allow anything to rest on the power cord. Do not locate the product where persons will tread or trip on the cord.

7. Never push objects of any kind into this product except the stylus used for reset.

Power Cord Requirements

The included power cord set(s) (appliance coupler, flexible cord, and wall plug) meets the requirements of the FCC and EC.

Interference

This equipment has been tested and found to comply with FCC and EC regulations as noted above. This includes the PDA, the supplied GPS receiver, and the Bluetooth CompactFlash unit.

Battery Safety

The Lithium Ion battery used in the device is designed to be recharged many times. Use only the AC charger that came with your unit. Never use a modified charger. The charging temperature should be between 0° C and 50° C (32° F and 120° F). The battery pack will normally warm during charging.

Storage: The lithium ion battery should be between 25% and 75% of full charge when stored for a long period of time. Store in a cool, dry, well ventilated area. Elevated temperatures can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames. If you own more than one battery where one is only used as a backup, it would be a good idea to rotate them every few months. Be careful not to short the output terminals.
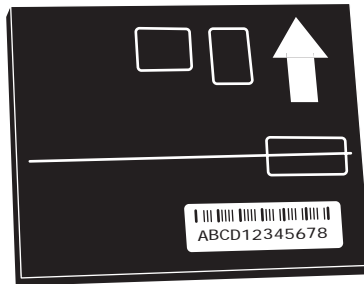
Appendix C - Command Line Interface

Introduction

The Chapter documents the Command Line Interface and other interface topics related to a programming environment. This collective interface is classified as an API (Application Programming Interface) for the WayPoint Navigation and supplemental software. The document supplements the WayPoint Navigation manual.

> ⓘ
> An API is a defined interface that provides a method for other programs to gain access to either commands or data used by another application.
> ⓘ
> CLI - A command line interface is a method of starting an application with extra arguments passed to the program.

Command Line For Navigation software

Command line syntax

The WayPoint Navigation software can be called directly from a command line such as a DOS style window. There are DOS style window environments available for the Pocket PC operating system. Two such interfaces are described later. However this approach can be used by other mechanisms as well.

Opening a DOS style window and typing "WayPoint" (case not important) will launch the WayPoint application using the standard search path for commands. It can also be launched by typing its full path name: \Windows\WayPoint\WayPoint.exe where the .exe is optional. If the application is already running then this is a good way to switch to the running copy of WayPoint.

It is also possible to pass parameters to the program by separating them from the name of the command with a space. Multiple parameters can be separated with a space or a comma. The parameters take the form of a mnemonic followed by an equals sign and then a value. Thus

```
WayPoint arg1=A arg2=B
```

would pass two arguments called arg1 and arg2. The value of arg1 is A and the value of arg2 is B. The argument order does not matter. Values can include spaces if needed. There can be no space on either side of the = sign.

A specific example would be:

```
WayPoint A=2215 Bunts Rd Z=44107 or

WayPoint A=2215 Bunts Rd,Z=44107
```

which would pass an address with a zip code to WayPoint. WayPoint would then search for and display this address on the screen.

Command line parameters

The specific function to be performed is specified by a series of command line parameters. Each parameters is followed with an equals (=) sign and a specific argument. These parameters include:

- **A** Address - This parameter needs a street number and street name.

- **BTN** Button - This defines a Button Function that issues a specific command to WayPoint.

- **C** City - This parameter needs a City Name

- **F** File - The parameter needs a File Name. It can be used by itself to assign the .mlp attribute or as part of the route functions to name the output file.

- **L** License Code - For protected commands there will need to be a license code issued with the command. This is not needed for some commands.

- **LAT** Latitude - the value of the latitude must be specified. Lat and Lon are always used together.

- **LON** Longitude - the value of the longitude must be specified. LAT and LON can be specified as degrees and decimal degrees (DDD.ddddd) or as degrees, minutes, and decimal minutes (DDD.MM.mmm)

- **OPT** Option modifies the Function behavior to explicitly request a certain operation. RT specifies that a route should be generate while (RT,GPS) specifies that a route be generated using the current GPS position as the starting point.

- **SA** Starting address if finding route

- **SC** Starting point city

- **SZ** Starting address zip code

- **ZL** Zoom Level - Specifies the display of a certain fixed zoom level. 1 means zoom all of the way in while bigger numbers zoom out further. Currently numbers up to 14 can be used.

- **V** Version code - This is currently unused but if specified it should have a value of 1. It will be used in the future to specify the syntax for a command so that if the syntax changes the command can specify the version syntax it is using.

- **Z** Zip code - used to specify a zip code to limit the search.

The way these parameters are used will be explained below in the function usage section. The parameters may be in any order and should be separated by one or more blanks and/or a comma.

Calling WayPoint from Another Application

WayPoint can be invoked from another program by calling it with a command line containing keyword parameters. This is done by calling the CreateProcess() function or its equivalent in the language being used and passing it the location of the WayPoint application, which is

```
\Windows\WayPoint\WayPoint.exe.
```

An example:

```
\Windows\WayPoint\WayPoint.exe A=2215 Bunts Rd Z=44107 V=1
```

This command causes WayPoint to search for an address at 2215 Bunts Rd in an area where the zip code is 44107. The version code (V) is not currently examined or required but should be set to 1 if used.

The calling program may wait for WayPoint to complete the command or not. Generally the application should wait for the command to finish but not wait for WayPoint to exit. Typically the applications should not wait for WayPoint to end since the user could go back to the original program using the start menu without ending WayPoint. If the original program were waiting it would be unresponsive to user input until WayPoint ended.

WayPoint can be invoked at any time. If an instance is currently executing, that instance will execute the command otherwise a new instance will be started.

Function Usage

The best way to understand how to use the various functions is to show how they might be used to do specific tasks.

FIND AN ADDRESS

The following parameters can be user to search for an address and display the location on the map:

- **A** (Street address or street name)

- **C** (City Name) Optional

- **L** (License code)

- **Z** (Zip code)

- **ZL** (Zoom Level 1-14) Optional

The only required parameters are A=address and L=license code. Optionally include the Z=zip code and/or C=City name if available. You can also specify a zoom level ZL (optional) from 1 (most zoomed in) to 14. Example:

```
 L=xxxxx ZL=3 A=2215 Bunts Rd. Z=44107
```

DISPLAY LOCATION USING COORDINATES

The following values are used to display the map with the exact coordinate location in the center.

- **LAT** (Longitude)

- **LON** (Longitude)

- **L** (License code)

The coordinates can be specified in either the format DD.MM.mmm (degrees, minutes, thousandths of a minute) or DD.dddddd (degrees.millionths of a degree)

Examples:

```
 L=xxxxx,LON=N41.27.758,LAT=W81.46.183
```

```
 L=xxxxx,LON=N41.451325,LAT=W82.754990
```

FIND ROUTE DIRECTIONS

The parameters listed below are used to generate a route. The starting values may be omitted entirely if a GPS fix is used.

- **SA** (Starting address)

- **SC** (Starting point city) Optional

- **SZ** (Starting address zip code) Optional

- **A** (Destination Street Address/Name)

- **C** (Destination City Name) Optional

- **Z** (Destination zip code) Optional

- **F** (Target for directions text) Optional

- **L** (License Code)

- **OPT** (Options)

To find directions from one location to another, include OPT=RT, specify the destination address A=address and the start address with the SA=start point address. Include the city or zip code with both addresses to ensure a unique address. Example:

```
L=xxxxx OPT=RT SA=1204 Warren Rd SZ=44107 A=2215 Bunts Rd Z=44107
```

If the SA parameter is omitted, GPS is started and the current GPS location is used as the starting point. To start GPS explicitly and begin active route guidance change the OPT=RT to OPT=(RT,GPS). To simply write the directions to an html text file and return, include the F parameter with the target file name, example:

```
L=xxxxx OPT=RT SA=1204 Warren rd. SZ=44107 A=2215 Bunts Rd. Z=44107
F=\My Documents\Directions.html
```

EXECUTE A FUNCTION

BTN (Button function)

To execute one of the button functions shown in the list under Tools > Settings > Hardware Buttons, use the single parameter BTN= along with the exact text of the button function shown in the Settings panel. Examples:

```
BTN=Zoom In
```

```
BTN=Route To Favorite
```

The commands include:

- **Zoom In** - Zooms the map display in

- **Zoom Out** - Zooms the map display out

- **More Detail** - Shows more detail on the map.

- **Less Detail** - Shows less detail on the map

- **Rotate 90** - Rotates the map 90 degrees

- **Favorites** - Displays the list of favorites

- **Route to Favorite** - Displays the list of favorites for routing

- **Nav Pane Up** - Displays the navigation pane

- **Nav Pane Down** - Hides the navigation pane

- **Active Guidance On** - Turns active guidance on.

- **Active Guidance Off** - Turns active guidance off

- **GPS** - Displays the GPS status screen

- **Day Colors** - Displays the map using day colors.

- **Night Colors** - Displays the map using night colors

- **Quick Menu** - Displays the WayPoint program options screen

- **Speed Alert On** - Turns the speed alert on.

- **Speed Alert Off** - Turns the speed alert off

The license code is not required for these functions.

OPEN A MAP FILE

F=File name

This is mainly intended to allow the Shell mimic the operation of the associate command to invoke WayPoint with a map file name when the map file is tapped in File Explorer.

START GPS USING A SPECIFIC COM PORT

This starts GPS using the specified COM port.

GPS=COMx

where x is the communication port number to use for GPS.

Example:

```
L=xxxxxxx,GPS=COM8
```

GPS/Routing Updates Saved in Registry

These keys are set when the values change and can be read by interested applications when needed.

HKEY_CURRENT_USER/software/mapopolis/GPS

The format is:

X DDD.dddddd Y DDD.dddddd

where X is N or S and Y is E or W.

DDD is padded with leading zeros if necessary so that the length of the message is fixed.

This value represents the last known location if WayPoint is not running or does not have a fix. WayPoint fills in this data whenever it has a GPS fix. Other programs requiring location information can use this registry entry. It is updated with each GPS update, normally once per second. Programs that use this data include TrafficWatch and WeatherUnderground.

HKEY_CURRENT_USER/software/mapopolis/NavStatus

The format is a single numeric character where:

1 = no route has been generated yet

2 = route generation/navigation in progress

3 = destination reached/navigation not in progress

Bluetooth Command Line interface

The Bluetooth software included in the WayPoint unit also supports a command line interface. This interface can be used exactly line the WayPoint navigation interface described above. The CreateProcess() programming method, scripting tools, and shortcuts can all be used. The application is called \Windows\BlueSoleil.exe. A command line example would be:

```
\Windows\BlueSoleil.exe -g
```

The specific function to be performed is added as an argument to the command. Only one argument may be used at a time. The available arguments include:

- **-DC** Connect to Internet using the default Dial Up Networking (DUN) device. The device must have been previously configured.

- **-DD** Disconnect the default DUN device from the Internet.

- **-G** Start the WayPoint GPS. This will start the default GPS device and switch to the WayPoint Navigation software. The default device must be previously configured.

- **-M** Start the Bluetooth Manager - This will start the manager that can be used to configure the various default devices.

- **-S** Silent start - This option will connect the Bluetooth driver to the Bluetooth hardware if present. If the Bluetooth hardware is unplugged the driver will silently exit. This option is used in the Start up folder to restart the Bluetooth after a soft reset.

Registry entry

The following registry entries can be used to determine the state of the Bluetooth connection:

HKEY_LOCAL_MACHINE\Comm\BTGPSCom

The format is a single number whose value and interpretation is:

-1   = No Bluetooth card is installed.

 0   = The card is present but no default GPS SPP connection exists.

1-9 = A GPS connection exists on the numbered com port.

Scripting programs

Several scripting programs can be used to access the WayPoint command line features in addition to using regular programming languages. The simplest is probably the DOS command line or DOS .bat files.

The DOS Command Line

There is a commercial DOS emulator available for Pocket PC devices. However, there are also free shell programs that provide command line capabilities without using an emulator. These include the command line program available from Microsoft in their Developer Power Tools package at: http://msdn.microsoft.com/mobility/windowsmobile/. It only has a subset of the DOS command set.

Another version is available from http://www.symbolictools.de/public/pocketconsole/. This version supports more commands but has more bugs on the Pocket PC and has trouble with some operations if your current directory has a space in the name. If you use this second link you will need to download the console and the pocketCMD command separately. Note that only one console can be installed on the unit at a time. For the WayPoint you will need the ARM version.

> ⓘ
> A Batch file is a file with a .bat extension that contains commands to be executed by the CMD shell. It can automate some tasks and can even provide limited programming capabilites.

The shells mentioned above are native Pocket PC or WinCE applications and are not DOS emulators. They will not run native DOS programs. They can be used to launch any Pocket PC program on your WayPoint unit and to write simple batch files. There is no supplied editor to edit or create batch files directly on the Pocket PC but they can be created on a PC and then moved to the Pocket PC. There are editors available that can directly edit these files.

The Microsoft CMD shell has no native way to create a loop that will exit after a time. The following shell snippet can be used as a workaround.

```
set count=A
:loop
echo %count%
if %count% == AAAAA goto eof
set count=A%count%
goto loop
```

The command line can be edited using the cursor keypad. Up/Down will move up and down through the previous commands and Left/Right can be used to move left and right on the line to edit the data. For a list of commands type Help or? on the command line. These various shells can have problems with file and directory names containing spaces.

The Microsoft CMD command 4.2 supports the following commands: ATTRIB, CALL, CD, CHDIR, CLS, COPY, DATE, DEL, DIR, ECHO, ERASE, EXIT, HELP, GOTO, IF, MD, MKDIR, MOVE, PATH, PAUSE, PROMPT, PWD, RD, REM, REN, RENAME, RMDIR, SET, SHIFT, START, TIME, TITLE, and TYPE. It also supports >, 2>, >>, 2>>, <, &, |.

The PocketCMD uses? instead of HELP and supports the following additional commands: ALIAS, BEEP, CHCP, COLOR, DELAY, DIRS, ECHOS, ECHOERR, ECHOSERR, FOR, MEMORY, POPD, PUSHD, SCREEN, VER, and VERIFY. It also support Unix like features. It does not have the PWD command.

Other Scripting Tools

Javascript is supported by Pocket Internet Explorer. VB is supported but no inside of applications. You need to download the VB runtime environment from Microsoft. Another powerful scripting tool is available for download from: http://www.geocities.com/ s_k_s_k_s_kru/. It is called nscriptm and is written by the same programmer as cabinstall (covered in chapter 9). Nscriptm can generate complex scripts and is capable of accessing and changing values in the registry.

ShortCuts

Another way to add command line parameters is via shortcuts. A shortcut is a way to execute a command on the WayPoint that is not in the search path under the Start Menu. You can use File Explorer on the WayPoint unit to create a shortcut. If the shortcut is tapped it will launch the application just as if the application itself was tapped. However, a shortcut can also be used to pass arguments to the application. For example:

```
28#"\Windows\BlueSoleil.exe" -m
```

is a short cut that passes the -m option to the Bluetooth application.

While File Explorer on the WayPoint can create a shortcut it cannot add the command line parameters. However, this is easy to do on a pc. The shortcut file on the WayPoint is nothing more than a text file with a .lnk extension. This can be created on a pc using notepad or any text editor and then copied back to the WayPoint unit. The file consists of one line. The beginning of the line has a number that represents the number of characters in the command and it followed by a # sign. The reset of the line is the command itself.

QuickLaunch

QuickLaunch is a program supplied as part of the WayPoint unit. It can be started directly or from the WayPoint Navigation software. If you are in the WayPoint navigation software you can press and hold the right button to launch or revisit the QuickLaunch program. This permits rapid access to key programs that can be used in conjunction with WayPoint Navigation software.

The QuickLaunch program can be customized by editing the QuickLaunch.xml file that is located in the \Windows\WayPoint\ directory. As shipped this file looks like:

```
<?xml version="1.0" encoding="utf-8" ?>
<mobilecrossing>
<levels>
<level id="level0">
    <nw>
        <icon>\windows\WayPoint\final_trafficwatchicon.jpg</icon>
        <exe>\windows\WayPoint\TWUpdater.exe</exe>
        <params></params>
        <caption>TrafficWatch</caption>
    </nw>
    <ne>
        <icon>\windows\WayPoint\final_wundericonColor.jpg</icon>
        <exe>\windows\weatherunderground\WUBootstrap.exe</exe>
        <params></params>
        <caption>Weather</caption>
    </ne>
    <sw>
        <icon>\windows\WayPoint\final_navigationicon.jpg</icon>
        <exe>\windows\WayPoint\WayPoint.exe</exe>
        <params></params>
        <caption>WayPoint GPS</caption>
    </sw>
    <se>
        <quicklaunch>level1</quicklaunch>
        <icon>\windows\WayPoint\final_exclamation.jpg</icon>
        <caption>Programs</caption>
    </se>
</level>

<level id="level1">
    <nw>
        <quicklaunch>level0</quicklaunch>
        <icon>\windows\WayPoint\final_exclamation.jpg</icon>
        <caption>Main</caption>
    </nw>
    <ne>
        <icon>\windows\WayPoint\contacts_icon.jpg</icon>
```

```
        <exe>\windows\addrbook.exe</exe>
        <params></params>
        <caption>Contacts</caption>
    </ne>
    <sw>
        <icon>\windows\WayPoint\calculator_icon.jpg</icon>
        <exe>\windows\calc.exe</exe>
        <params></params>
        <caption>Calculator</caption>
    </sw>
    <se>
    </se>
 </level>

 </levels>
 </mobilecrossing>
```

The data defines the information for the four (4) corners of the QuickLaunch display and the Levels are used to allow the top level QuickLaunch icons to call the Quicklaunch itself with a new screen. Level 0 is the top level. Note that all four corners must be defined in the xml file even if some of them are blank. These four corners are named nw, sw, ne, and se.

Each quadrant should define the image to be displayed, the executable to be started, any command line parameters to pass to the program, and the caption to appear under the image. Each image should be a 104x120 pixel jpeg. There are several sample images in the WayPoint directory.

All defined xml keywords are shown in the example. Both opening and closing keywords are required for each statement according to the xml standard.

There is no method provided to edit the file on the WayPoint unit directly. The file can be copied to a pc and then edited. The user should ensure that a copy of the original file is kept so that it can be reinstalled to restore the known behavior if an error is made in the editing.

D

Appendix D - Firmware and Map Updates

This chapter covers the installation of WayPoint Firmware upgrades and the Installation of Map upgrades or purchases of additional areas.

Firmware Upgrades

The design of your WayPoint permits easy installation of firmware upgrades. A firmware upgrade can be used to re-install a full copy of the Pocket PC OS and all of the included applications. The upgrade writes the this data into a 32 Megabyte area that has been provided to hold the data and does not disturb the 128 Meg ROM area used to store maps and navigation settings.

Warning - A firmware upgrade performs a hard reset. All user data stored in RAM will be destroyed. It is highly recommended that the user backup RAM data before applying a ROM upgrade.

Backup

There are 4 backup strategies that can be employed to preserve user data.

1. ActiveSync can be used to sync PIM data to your PC. Mac or other computer users may have a similar tool to do this job. Data synced to the main computer can be restored after the upgrade simply by syncing again. Generally PIM data includes all of your contacts, to-do lists, and schedules. This list can vary depending on how you set up your sync application.

2. ActiveSync (and some third party tools) provides the ability to backup all of RAM. If you have additional data beyond PIM data you can use this method to save your information. The main problem with this approach is that when the data is restored it could overwrite some new ROM information. For example, if you load an application that overwrites some system files and these system files are update in the ROM upgrade the restore could

actually overwrite these updated files with older versions. Third party programs often allow selective restores which helps prevent this kind of problem.

3. You can manually copy critical data to your computer or to a memory card. This approach requires your understanding of the files you have added but this may be the best way. For example, if your added data is stored in My Documents then copying the contents of the directory to a backup place will preserve it. It can easily be restored file by file after the upgrade.

   Programs that were installed via ActiveSync need not be backed up since ActiveSync itself remembers them and can reinstall them. Data created by those programs will need to be backed up. Programs installed via cab files can be reinstalled by copying the cab file to the unit.

4. You can use the provided Gismo program. This is the approach recommended by Mobile Crossing. It provides the flexibility to backup exactly what you need and can restore any or all of the backed up data. Backup files can be stored on the Flash Disk (if there is room) or on a user supplied memory card. For more information on this approach see Chapter 3 "Backup" on page 37.

Performing the Upgrade

Once you have determined and executed your backup strategy you are ready to perform the firmware upgrade. You will need a CompactFlash memory card of at least 32 Meg to perform this upgrade and the upgrade file. The upgrade itself may be supplied to you on a CompactFlash card or you may have downloaded it from the internet. If you downloaded it from the internet you will need to unzip the file before it can be used. The CompactFlash memory card will need to contain the xip.bin file at the root of the card to be recognized by the upgrade boot loader. It must have this name and must be stored in a contiguous area on the card. If you have problems reading the data you may need to erase the card and ensure that this file is the first one copied to the card.

In addition you should ensure that the battery on your WayPoint unit is charged up so that you won't encounter power problems during the upgrade process. For extra insurance you can insert the unit to the charging cradle after the upgrade begins. The CompactFlash card can be inserted before the upgrade procedure or when prompted on the screen as part of the procedure. Read the following instruction through before beginning and then follow them step by step.

The process starts with a hard reset of the device and then a special key sequence is used to enter the eboot mode. The eboot mode will request the CompactFlash card you have prepared and then load it into RAM to verify the file contents. Once this is verified the RAM copy will be used to burn the ROM with the new upgrade. A second hard reset will be used to exit the eboot loader and initiate the new ROM. You can now proceed with the standard setup steps you performed when you first got the unit. You can restore your backup at any time you wish after these steps.

1. Remove the battery cover and the battery.

2. Use the stylus to turn off the power and then back on. (Hard reset)

3. Hold the unit in your hand and depress record button on the side of the unit.

4. While holding the record button down, reinsert the battery and back cover.

5. Continue to hold the button down and look at the screen side - The top banner should show "eboot" after a short period.

6. Once the eboot screen appears you can turn loose of the record button.

7. The screen will prompt for the CF card. Insert it now if not already done.

8. The screen display will provide progress bars while the upgrade is going on. There are two bars, one to load the xip.bin file from the CF card and one to indicate that the upgrade is happening. When the unit completes the upgrade it will indicate this.

9. Turn the unit over, remove the battery cover and battery.

10. Reset the unit by sliding the switch off and back on.

11. Reinsert the battery and battery cover. After a few seconds the standard WayPoint start screen should appear.

12. Follow the on screen instructions to set up your WayPoint.

After the firmware is installed you can reload backups or software as needed.

Map Updates and Installs

Mobile Crossing has supplied a simple program to allow you to install map updates or additional maps to your unit. This program can run from the WayPoint itself so that no additional computer is needed. The maps can be obtained from the internet at the Mobile Crossing web site, http://www.mobilecrossing.com, or from a memory card you purchased from a Mobile Crossing retailer. The maps will need to be activated during the installation process. Once activated they can be reloaded as often as you need to. The install program will guide you through the activation process. Activation can be performed via the web or by calling Mobile Crossing. A credit card or paypal account is required for either of these methods. If you prefer to use a check you can activate your upgrade or new maps via mail. You will need to provide the key from the install program.

Once you have purchased the activation code you can use it to complete the install via the install program. Activation is unique to your serial number unit. Be sure and keep a copy of the activation code for future use. You can contact Mobile Crossing if you ever lose it as we will have a record of what maps you own.

Glossary

ActiveSync - ActiveSync is Microsoft software that runs on a pc. It interfaces between the PDA and the host computer. It provide synchronization of PIM data, the ability to backup the data on the PDA, internet pass through, and other services. For more information on ActiveSync see the Pocket PC reference manual on the CDROM.

API - **A**n API, Application Programming Interface, is a defined interface that provides a method for other programs to gain access to either commands or data used by another application.

Autorouting - This term refers to the ability of the unit to take a starting and destination location and find a route between these locations that follows the available roads.

Batch - A Batch file is a file with a .bat extension that contains commands to be executed by the CMD shell. It can automate some tasks and can even provide limited programming capabilities. Use of this kind of file requires a download of CMD functionality.

Bluetooth - A trademarked name for a short range wireless radio protocol that can be used to replace wires in connecting devices together.

CLI - A CLI, command line interface, is a method of starting an application with extra arguments passed to the program by appending them to the command name itself.

CompactFlash - CF refers to a technology and physical format used to hold small peripheral cards. These cards can contain Input/Output devices or flash memory. The name is trademarked by SanDisk.

Fix - A fix in GPS use means that the GPS has acquired data from at least 3 satellites and then computed your current location. If it fails to be able to do this it is said to have lost its fix. A fix can be either 2D or 3D depending on how many satellites are available and their positions in the sky. Four satellites are the minimum needed for a 3D fix.

Flash - Flash refers to a type of memory used in your WayPoint unit. Flash memory does not lose data when power is removed.

Geocaching - Geocaching is a hobby where some people hide a cache of stuff (none of it particularly valuable) and then identify the location with GPS coordinates. Other folks set off to find these hidden treasures and leave their name in a log book.

GPS - Global Positioning System. This is a system that provides world wide coverage for your GPS receiver. It consists of three parts. The satellites, currently about 28 of them in overhead orbits, the GPS receiver you own, and a set of ground stations that constantly monitor the system to ensure integrity and to fine tune the satellites.

HDOP - Horizontal Dilution of Position. Dilution of Position is a unitless number that represents how good the GPS solution is based on the current satellite positions. For horizontal DOP any number less than 2.0 is very good.

NMEA - National Marine Electronics Association. In this context NMEA is a standards body that defines the interface specification used by GPS receivers.

PDA - Personal Digital Assistant is a term used to describe a hand held computer.

PIM - Personal Information Manager is a term used to describe a suite of programs used to manage personal information. These include a contact address book, a personal appointment calendar, and a to-do list.

Roadlock - Roadlock is a term that is used to describe an action of the navigation program. With roadlock enabled the program will attempt to always keep the GPS icon on the road. If the location is too far away from any road then the actual GPS location will be shown. The idea of roadlock is to make the program more tolerant of map errors or temporary accuracy errors in the GPS system.

Search the sky - This is a term used with the GPS to indicate that it is performing a cold start without any local knowledge of its previous position or even the time. Expect that this method will take a lot longer to obtain a fix.

Subscreen - In the context of this manual the various applications are said to have a main screen containing the major data and various subscreens which are support screens for the main screen. In WayPoint navigator the map screen is the main screen and route screens, GPS status screens, etc. are subscreens.

USB - Universal Serial Bus refers to an connector on the front or back of your computer or peripheral device. It serves as a method for the data or power to get from the computer to the peripheral device.

WAAS - Wide Area Augmentation System. This is a system that is designed to improve the accuracy and integrity of the GPS system for air travel. For the US is currently consists of 2 satellites, one off the east cost and one near the International Date Line. Neither is particularly

well suited for the west coast but both can be received under favorable circumstances. When the signals can be received and the GPS is enabled to use them, accuracy can be improved about 2 to 3X. WAAS can improve GPS accuracy but it generally not needed for vehicle navigation.

Index

WayPoint Quick Reference

	Press the Button	Press and hold the Button
Favorites	Navigate to a favorite location	Save current position.
Detour	If no route then bring up route form else Route with a Detour	Quick Detour to selected Locations (like a gas station)
Status	Check GPS status	Repeat last voice prompt
WayPoint	Switch between previous application and WayPoint	Display Traffic & Weather if available

Shortcuts

Inside a WayPoint tool ♡ , ⬦ , ⬦? = OK, ⬦ = cancel.

Thumb Wheel – Up = zoom out, Down = zoom in, Press to select menu item.

Handy Commands

Navigation enable/disable – **Tools** > **Navigation** > **Active Route Guidance**

Route Command – **Tools > Navigation > Find Route**

Things to Try

Visit a tourist attraction.

Visit a museum from the quick detour function.

Try a new restaurant.

Try Geocaching.

Part Code: WPM00